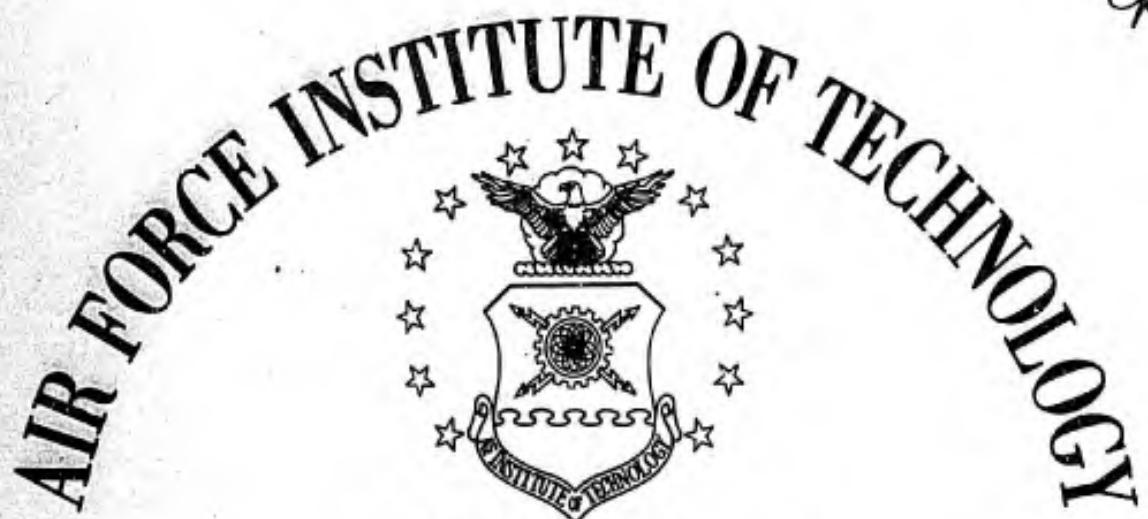


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THE ROLE OF THE AIR FORCE PLANT
REPRESENTATIVE OFFICE IN THE
WEAPON SYSTEM ACQUISITION PROCESS

THESIS

Roger T. Kozuma
Major USAF

GSM/SM/69-11,4 Frederick T. Dehner
 Captain USAF

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45433

GSM/SM/69-11,4

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THE AIR FORCE PLANT REPRESENTATIVE OFFICE
IN THE
WEAPON SYSTEM ACQUISITION PROCESS

THESIS

Presented to the Faculty of the School of
Engineering of the Air Force Institute of Technology
Air University
in Partial Fulfillment of the
Requirements for the Degree of
Master of Science

by

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Graduate Systems Management

September 1969

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Technology (AFIT-SE), Wright-Patterson AFB, Ohio
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Preface

The weapon system acquisition process is a complex of organizations and people engaged in a maelstrom of activities to produce defense weapon systems. The authors have been a part of this complex in engineering development and System Program Office (SPO) activities.

Our study of systems management exposed us to a broader view of Air Force Plant Representative Office (AFPRO) activities than had our working experiences. As a result, we decided to explore the AFPRO and its activities. A literature search yielded no information on the AFPRO but preliminary investigation at HQ Air Force Contract Management Division showed the need for further study.

We approached our study with a dual objective in mind. The first objective was fulfillment of academic requirements for a master's thesis. The second objective was to produce a document which would be useful to the organizations within the Air Force contract administration environment.

Study of the weapon system acquisition process in detail became a necessity at the outset. In addition, a conceptual framework was needed to provide a model for analyzing and discussing such a vast and complex organizational system. The principal study effort was expended in inter-

viewing and analyzing tapes from 50 interviews. Approximately 300 manhours were devoted to this task.

We are indebted to all of the personnel who generously devoted time from their busy schedules to provide the data for the heart of the study. Our particular acknowledgement goes to Lieutenant Colonel Robert H. McIntire, our advisor, for his constructive advice and guidance.

Of course, it was expected that our family lives would be disrupted during the study and the agony of reducing it to writing. The patient editing and typing of all drafts by Doris Kozuma, and the perseverance of Captain Dehner's new bride, Sandy, were indispensable to the completion of this paper. We extend our sincerest thanks to Miss Nancy Lewis for her diligent typing of this final copy. Our gratitude for their support is unbounded.

Roger T. Kozuma

Frederick T. Dehner

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Abstract

The objective of the research was the preparation of a systems oriented treatise on the AFPRO role and the AFPRO-SPO relationships in the Weapon System Acquisition Process (WSAP). A literature and official documentation research effort was conducted to determine the extent of existing policy documentation coverage of the AFPRO role, the AFPRO-SPO functional relationships, and the AFPRO-SPO Memorandum of Agreement (MOA). Air Force Contract Management Division (AFCMD), AFPRO, and SPO personnel were interviewed in order to obtain operative data on the subject. The SPO personnel interviewed stated the AFPRO role in the WSAP, in agreement with the supporting documentation. They also stated that most SPO personnel do not have a working understanding and appreciation of the AFPRO role. The policy guidance specifying the role and functions of the AFPRO is widely dispersed throughout the WSAP supporting documentation. Consequently, SPO personnel do not have readily accessible and visible documentation that would assist them in overcoming their lack of understanding of the AFPRO role. SPO personnel were found to be reluctant to delegate task responsibility and authority to AFPRO functional counterparts until the late phases of the WSAP. Very few recognize the mutually supporting functional relationships between an AFPRO and a SPO. Consequently, the AFPRO establishment of SPO con-

tacts and confidence in the early phases of the WSAP depends on the initiative of the AFPRO in providing contract administration support to a particular SPO. The existing policy documents do not provide guidelines that cover the nature and extent of AFPRO support to be given to SPOs during all phases of the WSAP. In general, the personnel interviewed and the relevant documentation are not specific in their guidance concerning the content and the scope of the MOA negotiated between the SPO and the AFPRO. The existing documentation, additionally, does not provide comprehensive guidelines to formulate the content and scope of a systematized AFPRO-SPO MOA. Although the AFPRO quality assurance function was determined to require 46.6% of the authorized AFCMD manpower, it was established that SPOs, in general, do not possess, within their organizations, the necessary function to maintain and control quality assurance program requirements and performance. The AFPRO-SPO relationship factors were found to cover a wide range of activities. At the extremes are functions that are unique to either the AFPRO or the SPO. In the mid-range are a variety of overlapping activities that are a function of the program peculiarities, the AFPRO-SPO-contractor legal and operating relationships, and the product yielded via these relationships.

THE ROLE OF
THE AIR FORCE PLANT REPRESENTATIVE OFFICE
IN THE
WEAPON SYSTEM ACQUISITION PROCESS

I. Introduction

Statement of the Problem

The Air Force Plant Representative Office is one of the organizations established in the Federal Government for the primary purpose of administering Department of Defense and National Aeronautics and Space Agency contracts. It falls under the jurisdiction of the Air Force Contract Management Division of the Air Force Systems Command and provides on-the-spot contract administration at the 21 defense industry plants currently under the cognizance of the Air Force Systems Command. Other defense industry contracts are administered by the Army, Navy, or the Defense Contract Administration Services unit of the Defense Supply Agency. All Department of Defense agencies must use the Air Force Plant Representative Office's services as an agent for on-the-spot administration of any contract with a corporation that has an Air Force Plant Representative Office in-residence.

In the United States Air Force (USAF), the procurement

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and production of a weapon system falls under the responsibility of the System Program Office (SPO) of the Air Force Systems Command (AFSC). When a SPO establishes a contract with a defense contractor, a Memorandum of Agreement (MOA) is negotiated with the plant representative concerned. The Armed Service Procurement Regulation (ASPR) delineates those functions that are the unique responsibility of the contract administrative service organizations in the Department of Defense (DOD). The purpose of the MOA is to define those tasks which the plant representative office will perform to supplement those specified by the ASPR to support the SPO in contract management. The delegation of agency authority from the SPO to the Air Force Plant Representative Office (AFPRO) is definitized in the MOA. The AFPRO becomes a vital communications link between the contractor and the SPO to execute and control contract performance.

It was decided to investigate the AFPRO role in the Weapon System Acquisition Process (WSAP) from a systems oriented viewpoint. The existing DOD and military service regulations outlining the policies, procedures, and specific services to be provided by an AFPRO to a SPO were analyzed to determine the nature and extent of interface coverage between AFPRO and SPO functional counterparts. The service regulations governing the establishment of the MOA were studied to

evaluate the degree of balance in the functions emphasized.

Objective of the Research

The objective of the research was the preparation of a systems oriented treatise on the AFPRO role and the AFPRO-SPO relationships in the WSAP. To support the accomplishment of this objective, three secondary tasks were performed. The operative viewpoints and the supporting documentation were analyzed and compared to determine the actual role of the AFPRO in the WSAP. The AFPRO-SPO relationship was studied from the viewpoint of counterpart functional disciplines. The extent of correlation of AFPRO-SPO views concerning this relationship was determined. The existing AFPRO-SPO ^{agreements} MOAs were analyzed to determine whether or not they reflect the existing policy and rationale for their accomplishment.

The authors collectively possess eleven years of experience in research and development organizations in the USAF. Prior to the initiation of this effort, they had only a limited knowledge of the role of contract administration in research and development. Many officers with whom they worked also had a limited knowledge of the subject. It was consequently decided that a need exists for a systems oriented treatise that integrates the multiple extra-organizational interfaces that have a direct impact upon the AFPRO role and the AFPRO-SPO relationship in the WSAP.

Assumptions

The WSAP takes place in a highly technical and complex environment which is affected by a vast array of external and internal influences. In order to introduce elements of workability into the study of the role of the AFPRO in this process, the authors used the following three assumptions:

The personnel in the AFPRO-SPO system perform their duties with the intention of complying with the existing directives and AFPRO-SPO MOA.

The economic, social, and political environmental factors are constant forces on accomplishment of weapon system acquisition process objectives.

The Air Force objectives and rationale behind the assignment of project priorities are consistent, understandable and workable in terms of AFPRO objectives.

Scope of the Problem

The study of the AFPRO role and the MOA was limited to Air Force projects. However, the extent of resource allocation to support other government agencies is identified. The study was conducted in the AFCMD, AFPRO, and SPO organizations. The AFPRO interfaces with outside organizations were identified. Direct contact was made with three AFPRO's, three counterpart SPO's, and the AFCMD.

Procedures of Investigation

Literature Research. Investigation and study of the problem at hand was started with a literature search. Very little published literature was found specifically concerned with the AFPRO. Some literature concerning defense contract administration in general was available. No Air Force Institute of Technology (AFIT) theses were available on this subject. The Defense Documentation Center and Rand Corporation bibliography search did not contain any AFPRO references. The AFIT library contained no references to AFPRO related books or reports in the card catalogue.

Official Documentation Research. Official DOD, HQ USAF, HQ AFSC, and HQ AFCMD, documentation was studied to determine the nature and extent of policy and procedural guidance. Delineation of the AFPRO role in the weapon system acquisition process and the AFPRO-SPO relationship was examined from a systems oriented viewpoint. This research included an investigation into the documentary basis for the preparation and implementation of the AFPRO-SPO MOA.

Empirical Research. Since only a limited amount of literature was found concerning the AFPRO role in the WSAP, the interview technique was used to obtain specific information. A questionnaire was developed and used to interview AFCMD and operating level AFPRO and SPO personnel. It is presented in

Appendix A. All persons were asked the same questions to determine the extent of the correlation of viewpoints between functional counterparts. Interviews were conducted at directorate or division chief levels and with command elements to take advantage of the years and diversification of experience of the personnel interviewed. The organizational elements interviewed were:

| <u>AFCMD/AFPRO</u> | <u>SPO</u> |
|--------------------------|----------------------------|
| Command Section | System Program Director |
| Comptroller (AFCMD only) | Program Control |
| Development Engineering | Systems Engineering |
| Quality Assurance | Test and Deployment |
| Production | Configuration Management |
| Contract Administration | Procurement and Production |
| Plans and Management | |

Time and travel constraints made it impractical to conduct interviews with all AFPROs and SPOs. Three programs were selected for study to provide a spectrum of the weapon system life cycle - a new program in contract definition, a program in the acquisition phase, and a mature program nearing the end of acquisition.

The counterpart AFPRO and SPO of each program were visited for interviews. Specific identification of these organizations is not revealed herein to maintain the anonymity of

the interviewees. The purpose of this anonymity was to promote objectivity and completely candid and frank responses.

A total of 50 people were interviewed. A tape recorder was used to record each interview. Approximately three hours were required to record and analyze each interview.

To promote objective interpretations of the interviews, initially, each co-author independently analyzed the tapes for content. The authors then compared their respective analyses, jointly listened to the taped interviews, and formulated a composite presentation of the tapes' contents.

The interviewees' answers to the questionnaire were initially assembled on an organizational basis. The replies of functional counterparts in the same types of organizations were then analyzed and compared, e.g., the System Program Directors' views in the three SPOs interviewed. Finally, the statements made by functional counterparts in the AFCMD, AFPRO, and SPO organizations were analyzed and compared. At this point in the research effort, the operative viewpoints were compared with the policy documentation governing functional activities in contract administration. The problem areas identified by the interviewees were assembled by the authors to present the complete range of problems cited. No scale for weighing the seriousness of the identified problems was presented to the interviewees. In the absence of inter-

viewee qualifications concerning the severity of the problems stated, the problems cited were interpreted by the authors as perplexing situations that require solution (as derived from Webster's New Collegiate Dictionary, Second Edition). Frequently reported problems were so identified. The significance and validity of the problems cited were reinforced by the depth, variety, and levels of experience of the interviewees.

Definitions. A listing of definitions of the key terms utilized in this thesis is presented in Appendix F.

Organization of Report

The conduct of a research effort is aided by a basic understanding of the environment within which the investigation is conducted. Consequently, a description of the USAF contract administration environment is presented prior to the analysis of the AFPRO role in the WSAP. The history of contract administration is discussed to show its evolution throughout the vastly changing situations to which it has been exposed since its advent in 1909. A presentation is made describing the existing policy documentation that regulates the environment in order to develop an understanding of the rationale behind its operations. The functions and organization of the major agencies within the environment are described in order to provide the last element for

clarity needed prior to actual contract administration research.

A solely textbook/documentation analysis of contract administration within the USAF would, at most, be wholly inadequate. It would leave out the incorporation of the expertise and experience of the personnel that serve as the foundation for the environment. In order to avoid this type of research deficiency, a presentation is made of the AFCMD, AFPRO, and SPO personnel's viewpoints concerning the role of the AFPRO, the AFPRO-SPO relationship, and the AFPRO-SPO MOA. The viewpoints of the personnel in these organizations are correlated and then compared to the content of the policy documentation. This viewpoint correlation and comparison to documentation serves as the basic findings upon which the chapter on conclusions is based. The validity and limitations of the research techniques employed in the personnel interviews are also discussed. A chapter on recommendations is included for two purposes. First of all, it provides the authors the opportunity to state their proposals for environment improvement that developed as a result of the research. Secondly, it permits the authors to identify, for future researchers, areas that are considered worthy of future investigation.

II. The Contract Administration

Environment in the USAF

The weapon system acquisition process involves the efforts of a large complex of participating organizations in the United States federal government and in industry. A conceptual foundation is needed to establish the inter-relationships of these organizations. An abbreviated discussion of general systems theory will be used to establish the weapon system acquisition process as the environment within which weapon system contract administration is performed.

The Systems Concept

A system is an orderly assemblage of components into an integrated entity. The system may be open or closed. A closed system is mechanical in nature and its states can be predicted, given some initial condition. Physical phenomenon considered by engineers and physical scientists fall into this category. An open system is self-maintaining through variable energy inputs of human effort. It is in constant interaction with its environment. Inputs from the environment are transformed by the system. The output produced affects the environment leading to cyclic interactions. Changes in the system are dynamic and result in a transformation of the whole state of the system.

The systems concept is a way to visualize the interrelationships among the components of a system and the system environment. The mutual interactions of internal and external environmental factors that affect the orderly array of these integrated components are taken into consideration. Any system is itself an element of a larger system. The systems concept recognizes the framework of a hierarchy of systems as well as the functions of subsystems.

An organizational system is ordered in layers from the worker or operative level, to that of the supervisor and middle management, to the top management level. The upper layer engages in free decision processes, determines the decision processes of the lower levels, redesigns the working processes, changes parameter values, and selects new parameters (Ref 4:13). Another facet in ordering an organization is the grouping of tasks to be performed into functional disciplines with a vertical differentiation of groups. A matrix organization is created by the horizontal overlaying of tasks, projects and programs on the basic organization of vertical functional departmentation. The systems concept provides the structure to deal with the inherent conflict between functional and project elements. Project management determines what, why and when tasks are to be performed, while functional management determines how and

where. The keys to cooperation and adhesion among elements of a system are communication and coordination. "Management is the primary force within organizations which coordinates the activities of the subsystems and relates them to the environment (Ref 4:14)." The management segment of an organization is the basic control element (Ref 2:53). Management establishes goals which are the standards for measuring planning effectiveness. Plans provide standards for measuring effectiveness and efficiency of the organizational system's internal operation and its output performance. To perform the control function, a management information system providing a feedback of results is required. Herein lies the self-maintaining and adjusting characteristic of open organizational systems. The organizational components, subsystems, and systems are integrands, the building blocks for summation into the social, economic, military and political systems of society.

The hierarchy of organizational systems in existence to manage the acquisition of weapon systems is the environment for contract administration. The description of this hierarchy will be limited to the military organizational system of the United States federal government. The role of the principal organizations in the weapon system acquisition process is presented in the next section.

The Weapon System Acquisition Process

The weapon system acquisition process (WSAP) is the time-phased system of programming the activities necessary to conceive, define, and acquire weapon systems for operational use. The WSAP is the initial part of the system life cycle specified by DOD (Ref 38:74). The system life cycle has four phases: Concept Formulation, Contract Definition, Acquisition, and Operational (See Fig. 1). Each phase is presented in this section.

Concept Formulation. The first of the three major phases in the WSAP is the Concept Formulation phase. The objective of this phase is ".....to develop requirements and feasible concepts for.....systems which will fulfill national defense objectives." (Ref 22:11). The process begins with recognition of need for a new or improved operational capability. System concepts, system feasibility, and requirements for engineering and operational system development programs are established. The outputs prerequisite to a conditional approval for engineering development are:

Primarily engineering rather than experimental effort is required, and the technology needed is sufficiently in hand.

The mission and performance envelopes are defined.

The best technical approaches have been selected.

A thorough trade-off analysis has been made.

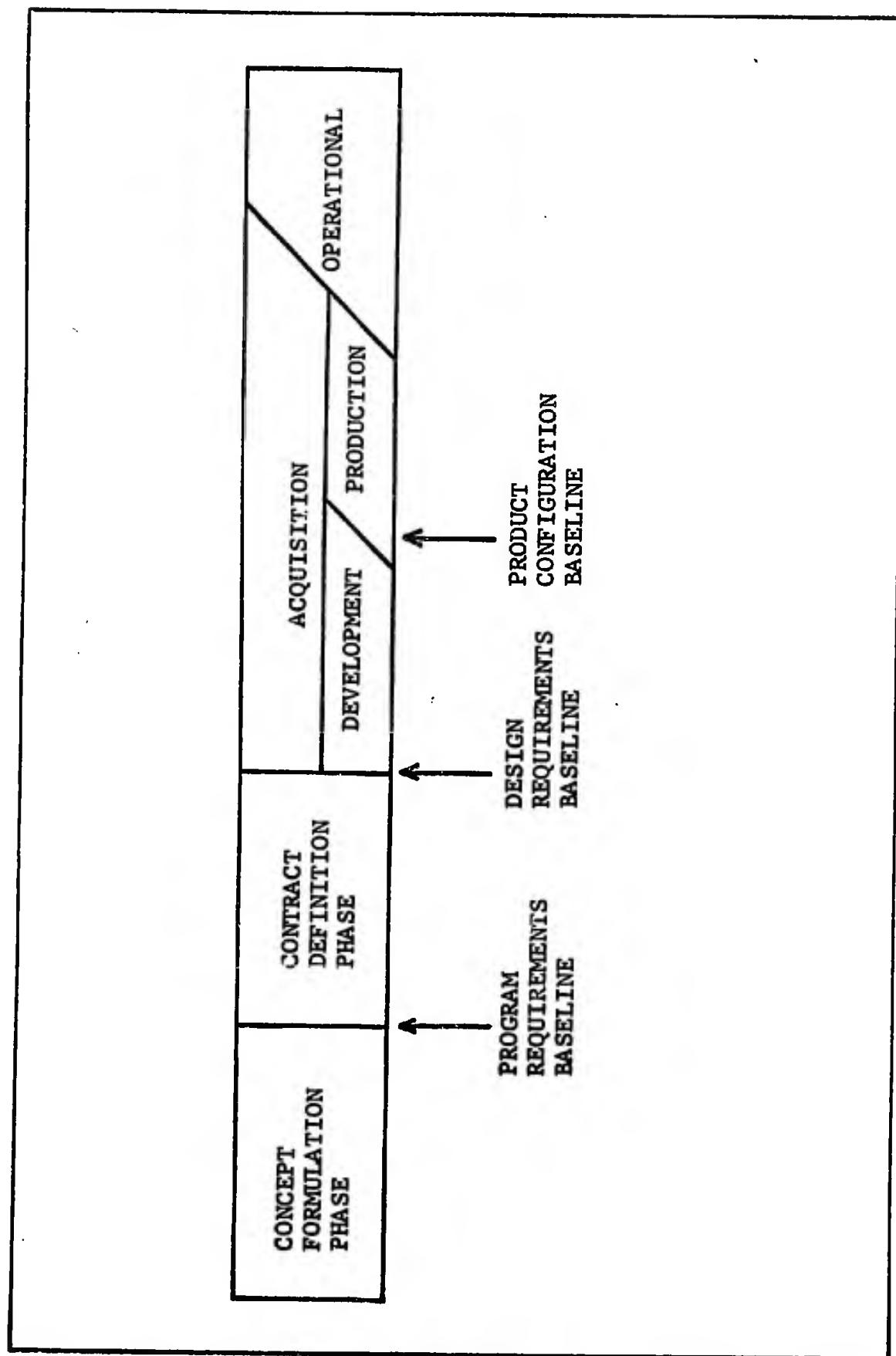


Fig. 1. System Life Cycle

The cost effectiveness of the proposed item has been determined to be favorable in relationship to the cost effectiveness of competing items on a DOD-wide basis.

Cost and schedule estimates are credible and acceptable (Ref 8:4).

When these prerequisites have been satisfied, the program requirements baseline is established, and the first major decision is made to give a conditional approval for development, which initiates the contract definition phase.

Contract Definition. The second phase in the WSAP is the Contract Definition phase. The purpose is "...to define as early as possible the cost, schedule, and system elements required....." (Ref 22:39). Refinement of the technical, cost, schedule, and management aspects is pursued to provide a basis to ratify the conditional approval for development. The most important consideration during this phase is the need for decisions to cancel, change, or proceed with development to be made on a total system and total cost basis. This includes achievable performance specifications with realistic cost and schedule estimates. For contractor-conducted contract definition, a firm fixed price or a fully structured incentive proposal for engineering development is required (Ref 8:4). This phase is especially sensitive to the quality of analyses, decisions, and plans made during the concept formulation phase. "....The quality of the work

and planning accomplished by the government during Concept Formulation will determine whether subsequent phases proceed in an orderly fashion or prove difficult." (Ref 3:3).

The contract definition phase is divided into three sub-phases: Prepare for Contractor Definition (A), Contractor Definition (B), and Review and Decision (C). (See Fig. 2)

Subphase A begins with receipt of documents providing an approved program requirements baseline. Preparation for contractor definition includes: activation of a System Program Office (SPO) cadre; SPO preparation of a work statement, the System Specification, Request for Proposal (RFP), plans, and schedules; Contractors' preparation of proposals in response to the RFP; and evaluation of proposals, selection of definition contractors, and contract negotiations for subphase B.

Subphase B begins with award of firm fixed price definition contracts. The activities during this subphase are contractor efforts, guided by the SPO, to satisfy contract definition objectives. Submission of proposals for engineering development ends this phase.

Subphase C includes review of contractor proposals by a System Source Evaluation Board, Source Selection Advisory Council, and a series of higher level reviews leading

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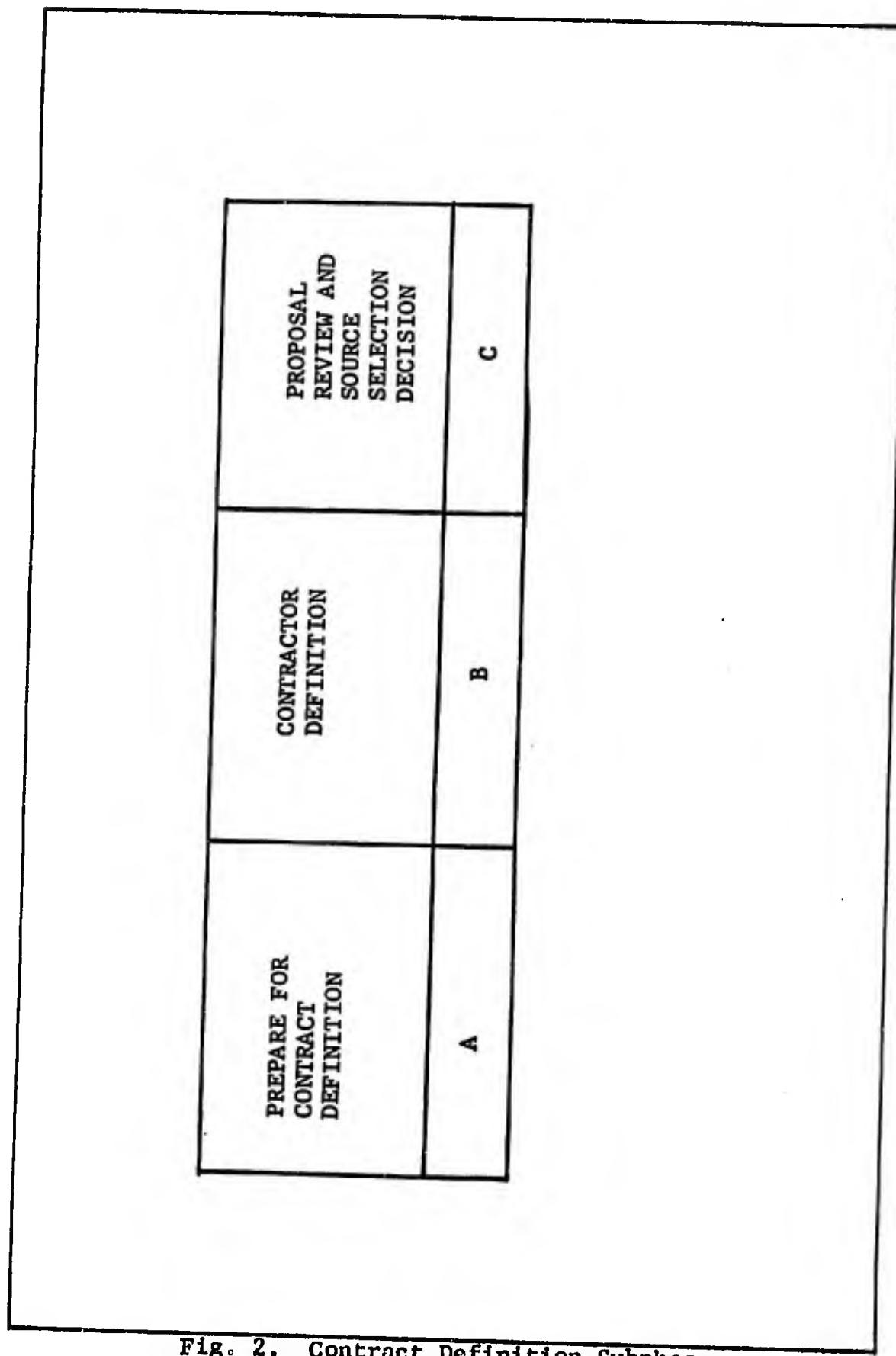


Fig. 2. Contract Definition Subphases

to a final review by the Secretary of Defense. The contractor winning the negotiated competition is selected on the basis of his original proposal. The final contract usually differs from the original proposal because of the negotiation process and the incorporation of other competitors' technical features within proprietary data limits. The submission and approval of a Proposed System Package Plan (PSPP) and a Program Change Request (PCR) and approval of the winning contractor is the second major decision to initiate the acquisition phase. The design requirements baseline is established at this point. The contract definition phase provides the foundation for the development phase. The sequential dependency of the life cycle phases is continued. "The quality of project planning during Contract Definition establishes....the level of visibility that the government will have during development." (Ref 3:4). A management information system must be contractually established during contract definition. The quality and usefulness of status reports providing management visibility depends on establishing a meaningful information structure on a near real-time basis. Prompt response is essential to the control aspects of program management.

All new engineering and operational system development programs do not require Contract Definition. Those which do

not exceed the funding thresholds of \$25 million for development or \$100 million for production may go directly from concept formulation to the acquisition phase (Ref 22:39-66).

Acquisition. The third phase in the system life cycle, and the final phase of the WSAP, is the Acquisition Phase. Engineering development and production constitute the two major subphases. The objective of the acquisition phase is to acquire, test and integrate the total weapon system to perform its mission in an operational environment.

The engineering development subphase involves the following actions:

Update detailed plans formulated during the definition phase.

Identify spares required.

Verify the performance requirements of detail specifications.

Accomplish preliminary and detail design, and perform design reviews.

Establish the configuration of the system. (Ref 22: 69).

Upon completion of the design review sequence and establishment of the product configuration baseline, the third major decision point is reached - to initiate the production subphase.

The production portion of the acquisition phase includes:

The beginning of production and construction.

Preparation of procedural publications.

Performance of subsystem, system, and any follow-on development testing.

Definition of detailed logistic requirements.

Preparation for transition of system management to the logistic agency.

Preparation for system turnover to the using organization. (Ref 22:69).

Operational. The fourth and final phase in the system life cycle is the Operational Phase. The weapon system is deployed to perform its intended mission as part of the total complex of systems of the using organization.

Phase Overlaps. The concurrency of activities in the WSAP results in overlap of some phases. The development and production subphases overlap within the acquisition phase. The acquisition phase overlaps the operational phase. The concurrent actions provide a compression of time to develop and produce a weapon system for early operational use. This concept was necessary because of the complexity and long lead-times necessary for modern weapon systems. Management of phase transitions is tied to the three decision baselines in the concept formulation, contract definition, and development phases. Introduction of new requirements and refinements to the system result in additional layering of con-

current actions during all of the life cycle phases. Within this system of organizations, the roles played by organizations vary by layer and by system life cycle phasing. The remainder of this chapter is devoted to descriptions of programs, missions, and roles in a descending order through the organizational hierarchy.

The Role of the Federal Government

Weapon systems are the resources used to implement the national security programs. National security programs are part of the collective programs of the U. S. A. such as: natural resources; human resources; science, technology, and economics; and other general government management programs (Ref 38:2). The basic resource management concept for these national programs is the Planning-Programming-Budgeting System.

The Planning-Programming-Budgeting System. The master concept for management of national security programs is the Integrated Planning-Programming-Budgeting System (PPBS). The PPBS is a systematic process to define an agency's missions, alternative missions and courses of actions. It specifies the activities and resources required to fulfill mission objectives. The PPBS is the major influence on the management of resources and activities. Its objective is to

provide the basis for major program decisions in the Executive Office of the President and in the operating departments. The PPBS terms were defined by John S. Foster, Jr., Director of Defense Research and Engineering in a 30 October 1966 memorandum to his deputy and assistant directors as follows:

PLANNING seeks to identify goals, objectives, problems and preferred solutions. Future environments and contingencies and ways of responding to them must be studied and evaluated from among the alternatives. Planning that is done properly and continuously updated provides the rationale and justification necessary to answer the question 'why do you need it?' Planning supports the overall budget (Budgeting) and program (Programming) as well as the individual program therein.

PROGRAMMING seeks to take goals, objectives, problems and preferred solutions identified by planning and to schedule and allocate over a given period the resources needed to realize the aims.

BUDGETING refers to the activity through which funds are requested of the President and Congress, appropriated, expended, and accounted for.

The three phases, Planning, Programming and Budgeting, are all part and parcel of the same continuum. Although various documents and publications representative of these phases (such as the 'plan', the 'program', and the 'budget') are often published sequentially, each of these phases is so time sensitive and so interrelated that they are at best 'snapshots' of what is essentially a moving picture. (Ref 38:19-20).

The aim of PPBS is to interrelate the functional classifications in the federal budget to agency program struc-

tures. All activities must ultimately be translated into funding requirements. The budget is the financial expression of the underlying program plan (Ref 38:25). At the top level, Congress and the President play key roles in the federal budget process.

Congress and the Presidency. The Congress is the principal federal law-making body. The U. S. Constitution empowers Congress to raise funds, provide and maintain armed forces, to make laws to execute its powers, and to appropriate funds by law. The President is the chief executive of the federal government and the Commander in Chief of the armed forces (Constitution of the United States of America, Articles I and II). He is responsible for the definition of the national objectives.

Congress and the Presidency play major roles in the federal budget process. Enactment of the budget and receipt of the appropriation warrant provide funding for weapon system acquisitions. The federal budget process has four basic phases:

Formulation and submission of the President's budget.

Congressional action - authorization and appropriation of the budget.

Execution and control of the enacted budget.

Auditing - management appraisal and accountability. (Ref 38:27).

The Department of Defense (DOD), a sub unit of the Executive Branch, plays a major role in the preparation and execution of the budget. Almost one-half of the federal budget is spent annually by the DOD. The activities of the DOD executed in the WSAP are described in the next section.

The Role of the Department of Defense and the Joint Chiefs of Staff.

The principal role of the Office of the Secretary of Defense (OSD) and Joint Chiefs of Staff (JCS), a military advisory council to the OSD, is to translate national objectives into military objectives to support the national security programs. The relationship of the OSD, the JCS, and the military departments is shown in Fig. 3, Bilateral DOD Organization (Ref 38:81). The centralized decision making process which controls the WSAP is shown with the OSD at the focal point. The decision process concept is portrayed to be:

The Secretary of Defense, his staff and the Joint Chiefs decide (upon military objectives).

The separate military services and components in their systems acquisition process implement (the decisions) (Ref 2:82).

User needs and producer actions are coordinated at OSD to insure uniformity of actions to support military objectives. Actions are governed by a system of DOD and JCS

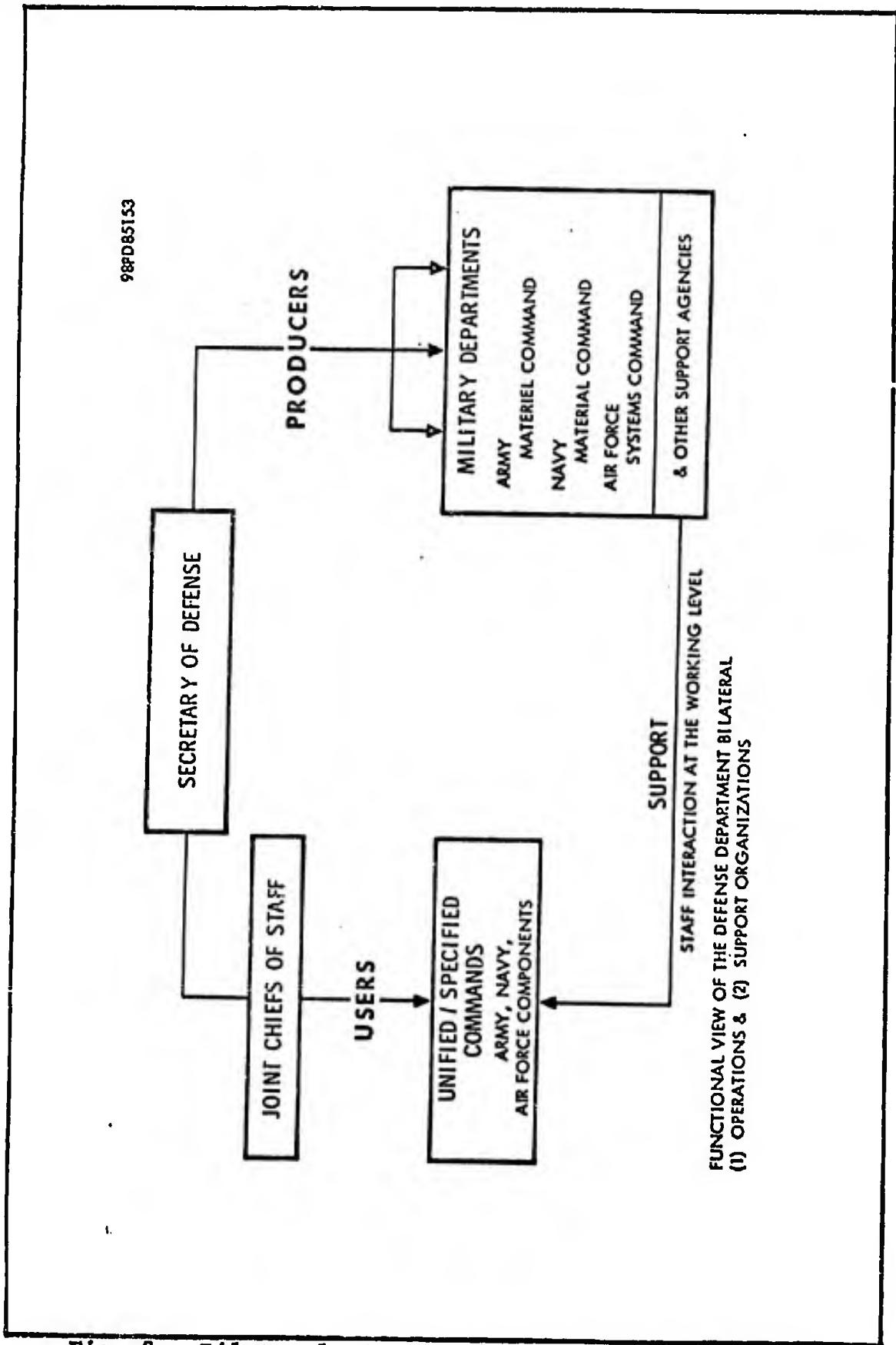


Fig. 3. Bilateral DOD Organization (From Ref 38:81)

plans.

DOD Plans. The basic influence of the OSD lies in assigning roles, missions, and tasks. The planning structure is mission oriented in accord with the DOD Programming System (Ref 23:13). The Five-Year Defense Program (FYDP) is the foundation of the DOD planning and programming system. It is a summation of all DOD components and their respective approved programs. Manpower and resource needs are identified for five years into the future. A projected eight year force requirement is also specified. DOD resources are classified into three categories:

Dollars

- Research and development.
- Investment.
- Operating.

Manpower

Hardware and facilities (Ref 38:39).

The FYDP is updated by the Planning-Programming-Budgeting System (PPBS). The analysis processes performed by the individual services are inputs for overall analysis by DOD. The FYDP relates overall resource inputs to program outputs. It works in conjunction with the JCS plans to form the transformation system between inputs and outputs.

JCS Plans. The JCS and the Joint Staff are responsible for planning operational employment of the combat forces.

The JCS plans are based on existing and forecasted military requirements (Ref 22:13). In this role, the JCS play a key part in determining the scope of military forces and supporting activities that impact program and budget factors. There are four major JCS plans that affect DOD planning activities:

Joint Intelligence Estimate for Planning (JIEP).

Joint Long-Range Strategic Study (JLRSS).

Joint Strategic Objectives Plan (JSOP).

Joint Research and Development Objectives Document (JRDOD) (Ref 38:41).

The JIEP provides the intelligence base for the JCS system of plans. It is prepared by the Defense Intelligence Agency of OSD.

The JLRSS is the long-range plan (10-20 years). It provides guidance for a 10 year period in military research and engineering objectives and in military policies, plans, and programs to support strategic concepts. Longer range general military concepts and strategies are provided to support attainment of national objectives.

The JSOP is the mid-range plan (2-10 years). It provides resource planning guidance to the unified and specified commands. Strategic and logistic guidance is provided to commence two years after plan approval and to continue through a five year period. The JSOP is accompanied by the

Logistics Guidance document which translates the JSOP into dollar and manpower resource requirements. A detailed research and development annex in the JSOP provides guidance for each service. JSOP, Volume I: National Military Strategy is prepared by the JCS for each service. The services define force levels in response to Volume I. The Joint Staff formulates JSOP, Volume II: Force Levels from the services' force level inputs and submits both volumes to the Secretary of Defense for approval. The JSOP is the principal source of information for OSD to develop annual logistic and fiscal factors and for planning future force levels and logistics requirements. The DOD budget cycle begins with submission of the JSOP by the JCS.

The JRDOD is a translation of JLRSS and JSOP operational requirements into research and development objectives. Guidance is provided specifying the relative military importance of research and development activities in support of strategic concepts, military objectives, and needs of the user commands.

The DOD-JCS planning process is continuous and concurrent. Inputs from similarly titled service documents form the basis for these plans. DOD and JCS approval of service plan inputs initiates cycling of the entire planning system process (Ref 38:41-42).

DOD Program Structure. The DOD program structure is a key to relating all DOD activities. DOD programs are mission oriented packages of operational force and support elements. The program structure is use or output oriented. The program structure differs from the budget structure which is input or resource-oriented. The budget groups all resources in the traditional structure used by Congress (Ref 38:52).

The ten basic DOD programs make up the military force structure. Forces are not service oriented. A program composed of force and support elements, will cut across service department lines, but an individual weapon system is a program element usually identified with a specific service (Ref 21:5). The ten major DOD programs in the FYDP are outlined in Table II of Appendix B. These programs constitute the basic components of the program package concept that relates planning and budgeting to mission-oriented defense requirements. The Department of the Air Force, a leading proponent of the program package concept, is analyzed in the next section.

The Role of the Department of the Air Force

The Air Force (AF) is responsible for preparation of air forces necessary for the effective prosecution of war (Ref 11:11). Development and acquisition activities of the

AF are based on the DOD Five Year Defense Plan (FYDP). The AF inputs to the FYDP come from the annual programs and budget review. The baseline for AF programs in the FYDP is the USAF Force and Financial Plan (F&FP). The F&FP consists of one volume for each AF program, a Weapons Annex, a Construction Annex, and a summary volume. The programs are translated into the Congressional budgetary classifications as shown in Table III of Appendix B, Correlation Between DOD Program Structure and Budget Categories (Ref 38:52). The key AF long-range planning documents are the Air Force Plan (AFP), Required Operational Capability (ROC), and the Required Actions Document (RAD).

The AFP is the AF input to the JLRSS and the JSOP. It provides an assessment of roles, missions, and capability requirements for a 15 to 20 year period. The AFP serves as the basis for objectives planning by AF Commands by specifying AF objectives, strategic concepts, requirements for forces and R&D, and by providing guidance to attain these objectives (Ref 38:123-124).

The ROC is prepared by major air commands to identify a specific operational deficiency. It relates to need for a DOD program element improvement or addition. It is valid for one year and focuses attention on force-oriented issues (Ref 38:125).

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The RAD is prepared by the Air Staff after OSD has approved the ROC and an accompanying program change request (PCR). Approval of the PCR changes the FYDP and F&FP baseline (Ref 38:125).

The planning processes described for DOD and the Air Staff, thus far, are inputs to the conceptual phase of the WSAP. The review and approval process continues into the contract definition and acquisition phases. The major decision points were shown in the WSAP as the program baselines.

The focal points for activities in the WSAP are the System Program Offices (SPO) of the Air Force Systems Command (AFSC). The AFSC and its relationships with other agencies are presented in the next section.

The Role of AFSC and Participating Commands/Agencies

Air Force Systems Command (AFSC). The AFSC plays a major role in the WSAP. The AFSC mission is:

....to advance aerospace technology, adopt it into operational aerospace systems, and acquire qualitatively superior aerospace systems and materiel needed to accomplish the Air Force mission (Ref 15:1).

The AFSC divides its activities into divisions to perform its mission. There are seven divisions and five development and test centers:

The Foreign Technology Division serves to recognize and evaluate technological threats.

The Aerospace Medical Division and the Director of Laboratories provide the technological base for development.

The Aeronautical Systems Division (ASD), Electronic Systems Division (ESD), and Space and Missile Systems Organization (SAMSO) serve as product divisions to develop, test, and acquire systems.

The National Range Division and the Contract Management Division fulfill support roles.

Five centers plan, develop, test, and evaluate weapons and weapon systems.

Air Force Logistic Command (AFLC). The AFLC plays a supportive role during the conceptual and contract definition phases. Its activities increase in tempo as contract definition and acquisition phases progress. The AFLC becomes the AF manager of weapon systems in the operational phase upon transfer of responsibility from AFSC. The mission of AFLC is

.....to provide logistics support and services (except medical) for USAF organizations, systems, and other activities.....

AFLC will participate fully and perform logistics support planning during the conceptual, definition, and acquisition phases of systems destined for the USAF operational inventory (Ref 14:1-2).

Using Commands. The command structure of the AF is divided into Major Air Commands. The roles and missions of Unified Commands and Specified Commands are governed by the

JCS and OSD. The combative commands perform dual roles - as major air commands and as components of unified commands, or as a specified command.

The following are examples of these dual roles. The Strategic Air Command is a major air command and a specified command (Ref 17:1). Administrative direction comes from the Chief of Staff and the Secretary of the Air Force. Operational direction emanates from the JCS and the OSD. The Tactical Air Command is a major air command, a component of the Strike Command, and, on order of the JCS, is a component of the Atlantic Command (Ref 16:1). The Air Training Command serves a dual role as a major air command and the training organizational element for all systems requiring manpower.

The combative commands comprise the operational arm of the AF in employing weapon systems as part of the DOD program element/force structure. Their role in the WSAP process is keyed to identification of operational deficiencies and provision of detailed operational concepts for the WSAP.

Other Commands/Agencies. There are many other AF Commands, military services, and federal agencies that participate in the WSAP. As previously mentioned, forces are mission oriented and cut across many functional departmentation lines. Some of the participants are; the Departments of the Army and Navy, the Federal Aviation Agency, the Defense

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Supply Agency, and its Defense Contract Administration Service (DCAS), the National Aeronautics and Space Agency (NASA), the Atomic Energy Commission, and the Ground Electronics Engineering Installation Agency (Ref 22:5). The Army and Navy are also principal DOD buying activities and, along with DCAS, perform contract administration services for the DOD and NASA.

System Program Office. The System Program Office (SPO) is the single manager project office responsible for "..... the task of integrating functional and extraorganizational efforts directed toward the development and acquisition of a specific project" (Ref 1:13). The SPO is the focal point for input and output of information and actions during the contract definition and acquisition phases.

The SPO cadre is established at the beginning of the contract definition phase by an AFSC product division. The cadre initiates the contract definition tasks in accordance with the Required Actions Document (RAD) and the approved Program Change Request (PCR) issued by USAF Headquarters. The studies, planning, and programming performed by the SPO cadre are used to prepare the Preliminary Technical Development Plan (PTDP). Upon submission of the PTDP, the Air Staff prepares a more detailed PCR to accompany the PTDP to OSD for final approval. These two documents form the basis for

actions during contract definition.

Toward the end of the contract definition phase, the SPO cadre prepares the Proposed System Package Plan (PSPP) which is submitted to OSD with a further refined PCR. The WSAP enters contract definition subphase C and approval of the PSPP, PCR, and final selection of contractors establishes the design requirements baseline.

The formal SPO is established when the PSPP/PCR are approved and publication of the System Package Program (SPP) is authorized by issuance of a Systems Management Directive from USAF headquarters. The program enters the acquisition phase at this point.

The SPO manages hardware development, testing, and production through a series of major progress milestones. Hardware development is managed through Preliminary Design Reviews (PDR), Critical Design Reviews (CDR), and First Article Configuration Identification (FACI) reviews. These precede the third major decision point in the WSAP - the production decision. The product configuration baseline is established by FACIs for definition of hardware to be produced.

An indispensable partner to the product divisions in the AFSC is the Air Force Contract Management Division (AFCMD). The Air Force Plant Representative Offices (AFPRO) of the AFCMD form a vital link between the SPO and the

defense contractor. The contract administration services provided by the AFCMD are covered in the final section of this chapter.

Contract Administration - The Role of the AFCMD

The basic objectives for the establishment of contract administration organizations are specified in DOD Instruction 4105.59, Department of Defense Contract Administration Services Plant Cognizance Program, 13 October 1964. The major premise for plant cognizance by AFCMD elements is that:

The military Department desiring cognizance has contracts in a plant for a major system or major sub-system. The system, which is the basis for assignment, must be of such critical military importance to the nation that the performance of contract administration services requires unusually close technical direction and control by the appropriate program manager; and that performance of these functions by other than the program manager would affect the successful completion of the system and its timely delivery to its ultimate user (Ref 9:6).

The Assistant Secretary of Defense (Installations and Logistics) is responsible for the DOD plant cognizance program. The AFCMD is directly affected by the centralized decision process. The Assistant Secretary of Defense (Installations and Logistics) in carrying out his responsibility Promulgates policies and procedures pertinent to the program.

Determines plant cognizance assignments.

Reviews plant assignments periodically (Ref 9:1).

The organizational departmentation for DOD contract administration services is shown on Fig. 4, DOD Posture for Contract Administration. There are eleven DCAS regions which exercise geographic responsibility for contract administration throughout the United States for all DOD agencies and NASA. The AF has two major air commands involved. Under AFLC, the Oklahoma City Air Materiel Area (OCAMA) has cognizance over thirteen plants which are primarily concerned with aircraft overhaul and modification contracts.

The AFCMD is responsible for AF contract administration throughout the weapon system life cycle. The mission of AFCMD is to act as

.....the single Air Force agency performing contract management functions at those contractor plants assigned to the Air Force by DOD for plant cognizance and to ensure the Government's interest while executing assigned and delegated contract administration functions (Ref 24:1).

The relative volume of defense contract administration service activity among AFCMD, DCAS, and the Army and Navy is shown in Table I, AFSC Expenditures Procurement and RDT&E, in terms of contract allocations in dollars.

AFCMD Field Elements. There are, at present, twenty-one AFPROs and five Contract Management Offices (CMO) in the

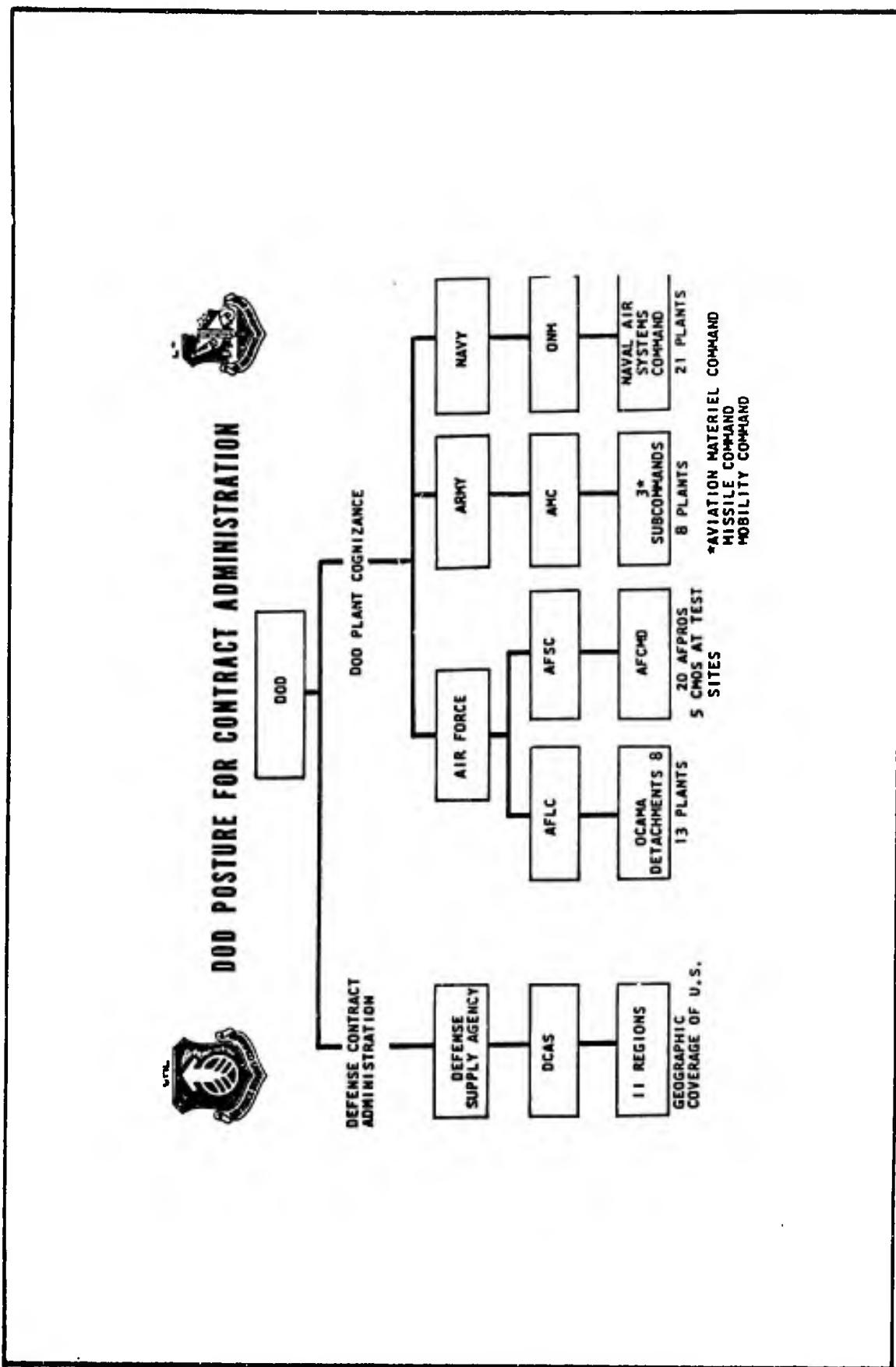


Fig. 4. DOD Posture For Contract Administration (From Ref 36:5)

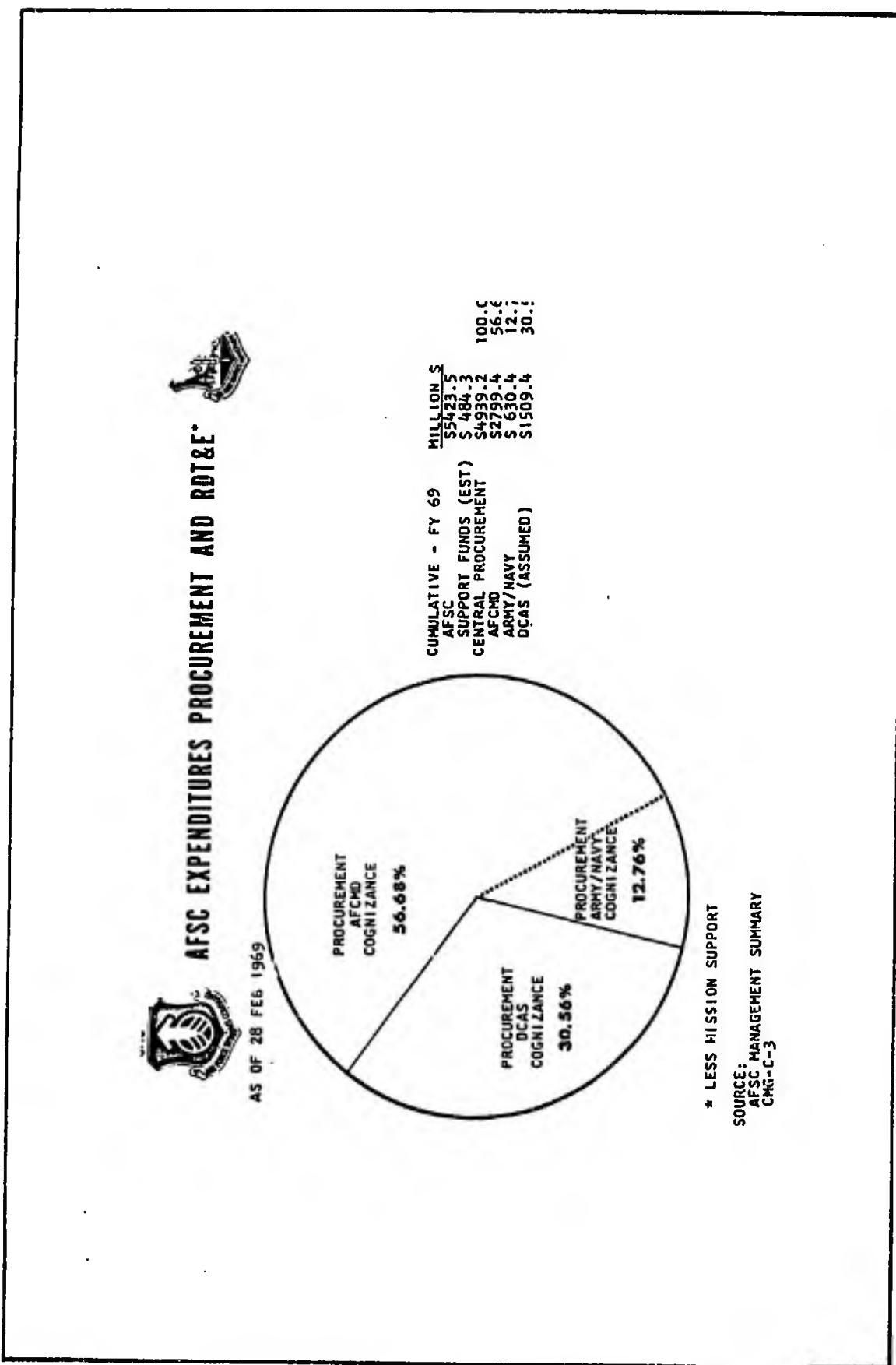


Table I. AFSC Expenditures
Procurement And RDT&E (From Ref 36:84)

AFCMD. Fluctuations in the number of AFPROs occur as plant cognizance is acquired or transferred (20 AFPROs are shown on Fig. 4). The AFPRO was established under the DOD Plant Cognizance Program and is the Air Force field contract administration organization resident at major defense contractor plants. The CMOs are located at AFSC testing facilities to provide contract administration services at these geographically scattered locations.

The AFPRO-SPO Relationship. The relationship between AFPROs and SPOs is viewed as a continuum of tasks and responsibilities. There are responsibilities and functions unique to each organization and a middle region influenced by program factors.

The contract administration services provided by AFPROs form a connecting link between the SPO and the contractor. In a functional sense, the AFPRO acts as a "field extension of the SPO". The AFPRO performs standard primary contract administration tasks specified in the Armed Services Procurement Regulations (ASPR) and command directives, and as delegated by the contract itself. The Memorandum of Agreement (MOA) is used to delineate special support provided by the AFPRO to SPOs. A schematic of the operating relationship is shown on Fig. 5, AFPRO-SPO relationship.

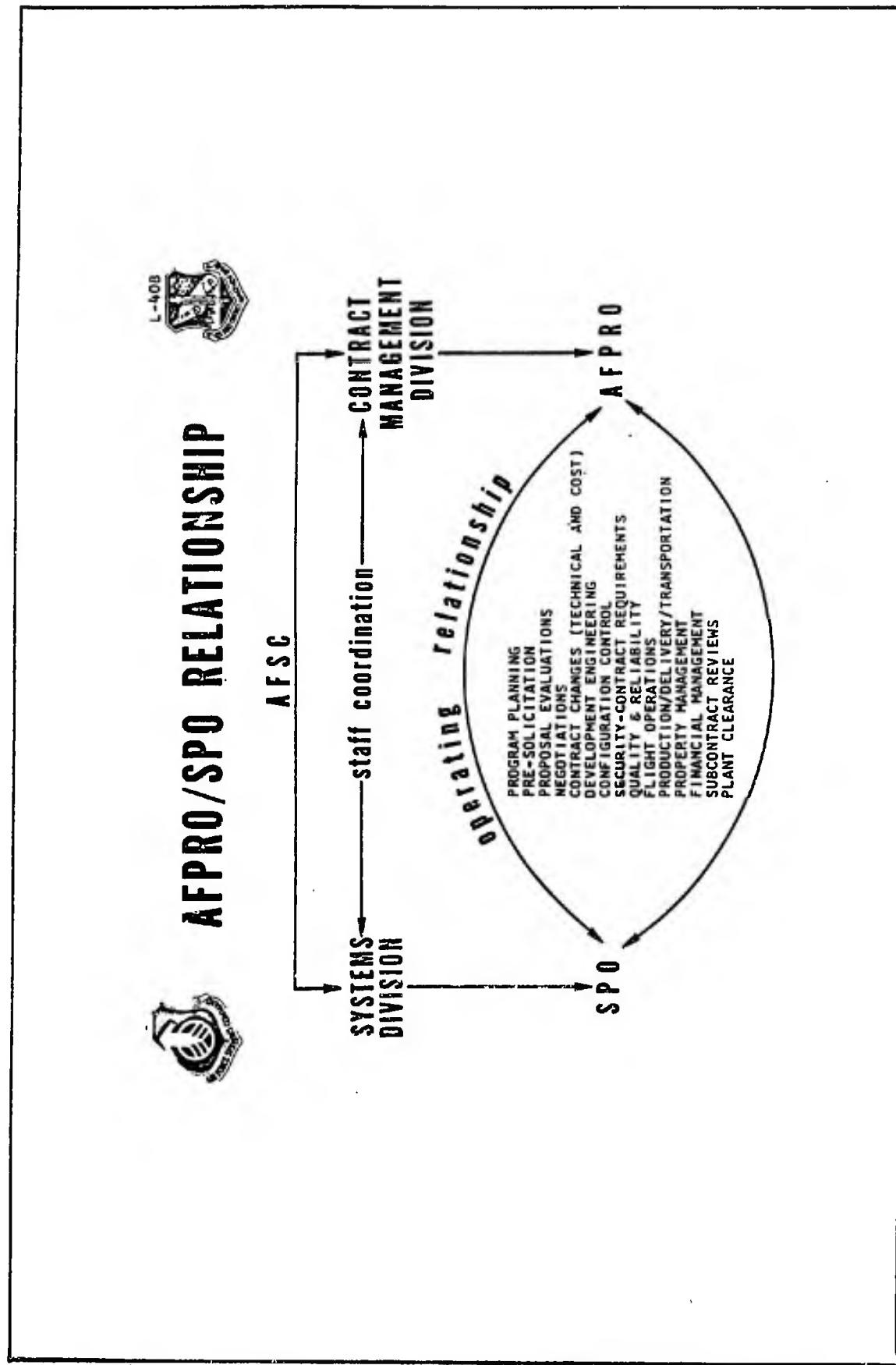


Fig. 5. AFPRO-SPO Relationship (From Ref 36:8)

III. The Historical Background and
Development of Contract Administration

Air Force contract management, as it is known today, had its origins with the first contract awards for military aircraft in 1908. Since that time, the aircraft industry environment has vastly grown in the volume and complexity of its products and procedures. The contract management techniques of the forerunner organizations to the United States Air Force had to continuously familiarize, adapt, and adjust their operations to this dynamically changing environment. The spirit of maintaining contract management currency in the presence of the changes brought about by technological progress is as prevalent today as it has ever been in the sixty-one years of contract management. It shall be the purpose of this chapter to briefly trace the historical evolution of the current form of contract management.

The Early Years (1909-1939)

From the time of the first military aircraft contract awards in 1908, through World War I, the United States aircraft industry expanded from the three original bidders to approximately seven companies with production capability. Although the extent of production of United States aircraft

was limited in this period, the war did strengthen the cooperative relations between the companies in the industry (Ref 35:2). The postwar environment for the aircraft industry was one of "hard times"; total deliveries from all companies averaged about five hundred planes a year in the twelve years prior to 1938 (Ref 35:10). In that year, President Roosevelt decided to expand the military air arm. The aircraft industry was then faced with two problems. First, the industry had to update its technology to master the techniques of mass producing all-metal aircraft (Ref 35:2). Second, the problem of integrating airframes with accessory equipment was not resolved (Ref 35:10).

From the start of contractual relations with the aircraft industry, several procurement policies were significant. Private industry was tasked to produce aircraft and competition was encouraged. Contractors were allowed to retain patents and this put them in a good position for their future development of aircraft. An incentive clause was introduced into the contracts - a practice that has carried over to current times (Ref 35:4). The government guaranteed the payment of contract costs in order to stimulate innovation and production. These policies and practices resulted in stimulating the contractor to design an aircraft that he could expect to produce himself.

The 1926 amendment to the National Defense Act (1918) decreed that all military aircraft would be obtained by employing the design, development, and production efforts of private aircraft manufacturers (Ref 35:10). This, in effect, terminated an internal Army Air Corps argument concerning whether it was best for the government or the aircraft industry to design, develop and test weapons. Industry-wide design competition became the starting point for the weapon system acquisition process (Ref 35:10).

Several considerations peculiar to the weapon system acquisition process required the government to establish a contract management system to monitor the post-contract award performance by the contractors. A basic difference between government and normal commercial purchasing required government surveillance to insure that acceptable goods were bought at the best prices. The complex nature of an aircraft necessitated that the government monitor the contractor's products to make sure they met the prescribed specifications and schedules. The degree of specialization in the aircraft industry operation required close teamwork between the government and industry on aircraft design, development, and production. This permitted the government the opportunity of seeing that it received appropriate returns on its investments. Finally, the "feast or famine" environment created in the aircraft

industry by the government's radically differing wartime and peacetime aircraft acquisition requirements did not permit the industry to operate as a normal enterprise (Ref 35:15).

Consequently, contract management became an organic part of the acquisition process. At first, contract management meant 100% contract end item inspection. However, the production demands of World War I re-oriented quality inspection from end item inspection to a methodology that checked quality throughout the cycle from design to acceptance.

Throughout this entire period, the location, name and level of the organization responsible for military aviation changed frequently. A detailed account is given in Reference 35. An organizational analysis of the changes is beyond the scope of this effort. However, the following points will be made. In the early post war period, quality inspectors were sent to major aircraft production plants on an itinerant basis. This proved to be unsatisfactory, and, in 1920, the first in-plant inspection office was established at the Boeing Airplane Company in Seattle, Washington (Ref 35:18). It was the pioneer form of the current AFPRO organization. In 1923, the second plant inspection office was established at the Douglas Aircraft Company in Santa Monica, California (Ref 35:19). Up until 1926, they were controlled

from Headquarters Air Services in Washington D.C.. From 1926 to 1939, the plant inspection offices were under the control of the three regional procurement districts of the Inspection Branch of the Procurement Section, Materiel Division, Dayton, Ohio. In 1939, the Materiel Division united its inspection and industrial war plan sections into three Regional Procurement Districts under whose control were the in-plant inspection offices.

The World War II - Korean War Era (1940-1953)

In response to German aggression on the European continent, in the spring of 1940, President Roosevelt requested that the aircraft industry expand its production capacity from 2,000 airplanes a year to more than 4,000 a month. The United States was starting to arm itself to become what the President referred to as the "arsenal of democracy" (Ref 35: 23).

Until 1939, military aircraft had been purchased utilizing the competitive bidding and single award system. In 1940, through a sequence of legislative actions, Congress relaxed the pre-1939 bidding and award system requirements. This was in preparation for the United States' entry into the war. Initially, the constraining of formal advertising for bids on aircraft parts was removed. This was followed

by permission to split awards among as many as three bidders. Finally, authority was granted to negotiate contracts to expedite the defense program on an as-needed basis (Ref 35:24). The use of letter contracts was authorized as a temporary expedient to the writing of formal contracts in order to get contract work started. During the period of 1940 through 1945, in order to expand United States aircraft production capabilities, the government provided 89% of the 3.84 billion dollars invested in aircraft plant expansion (Ref 35:26).

Expansion of the Army air arm and relaxation of Congressional contract restrictions introduced numerous organizational changes in the procurement organization of the Army Air Corps. The supply and maintenance functions were separated from the procurement and engineering functions of the Materiel Division (Ref 35:27). Three additional procurement districts were added to the pre-war structure to handle the vastly increased contract management workload. Numerous plant representative offices were set up at major defense plants. Area Offices were established in localities whose work volume did not justify the creation of independent contract management offices (Ref 35:30).

The post-war contract management environment underwent many changes that were put into effect to return the contract

management mechanism to peacetime normalcy. The significant aspect of these changes was the introduction of wartime improvements into the formal system. As a result, the nation was provided with an important mechanism for mobilization to prepare for involvement in future wars. On 19 February 1948, President Truman signed the Armed Services Procurement Act of 1947 which required uniform procurement procedures for all the branches of the Armed Forces. It resulted in the preparation of the Armed Services Procurement Regulations (ASPR) which gradually replaced the myriad of service directives and regulations on the preparation and administration of supplies and services contracts (Ref 35:31). The ASPRs were written in general terminology to allow each service to generate its own specific implementation procedures. The Renegotiation Act (1948) was passed to introduce clauses into contracts which would permit the government to study contractor operations, identify excessive contractor profits, and eliminate them. The Industrial Reserve Act (1948) established the legal right to maintain a nucleus of government owned plants and a reserve of machine tools and industrial equipment in order to provide the foundation for any future mobilization (Ref 35:33).

The contract management field organization underwent a cutback after World War II. The Regional Procurement dis-

trict level of the structure was dropped and supervision was passed to the Air Procurement Field Offices. In addition, the number of the latter offices was decreased. At the outset of the Korean War, the intermediate structure was re-established and called Air Procurement Districts. The plant representative offices were once again under the Procurement Districts (Ref 35:36). The functions within these offices were refined and expanded, the operations were standardized and the quality of the personnel manning the offices was raised. No longer did plant representative personnel duplicate or actually perform contractor operations. They shifted to evaluating contractor performance by a review of his methods (Ref 35:36). It was a management concept that placed more dependence on contractor performance.

During the Second World War, plant representatives performed ground inspection and flight acceptance tasks. Increased production made complete inspection impossible. Inspection became periodic spot checks of items during manufacture and assembly. The new post-war quality program contained a quality control policy statement, specific contractual quality requirements that the contractor was to implement in his system, and administrative procedures that the plant representatives were to follow in their surveil-

lance of the contractor's quality program. In 1953, a standard surveillance operating plan was prescribed for plant representative utilization (Ref 35:40-41).

The marked production increases precipitated by World War II resulted in the decentralization of the Materiel Division's Production Office. Production specialists were placed in the contractor offices to facilitate the acquisition of vital production information and the required coordination with the contractors. They served as production expeditors and aided in the resolution of problems pertaining to shortage of machine tools and strategic materials. In the years following the war, there was a great deal of contract delinquency precipitated by tight funding and unrealistic delivery schedules in the contract. Steps were taken to introduce more realism into the contract. Pre-award surveys (Facility Capability Reports) were set up to evaluate the capability of a contractor to meet proposed contract requirements (Ref 35:43). The emphasis on industrial mobilization and planning created by the National Industrial Reserve Act (1948) gave the plant representative production personnel a new role in the evaluation of contractor industrial preparedness and mobilization plans (Ref 35:44). Consequently, the machine tools shortage problem was not as severe at the outset of the Korean War as it was at the

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start of World War II.

The monitoring of industrial property furnished by the government was decentralized to the field offices during the war. In 1951, the ASPR was revised to make contractors responsible and accountable for all government property in their possession (Ref 35:49).

The increased use of cost plus fixed fee contracts to provide aircraft to support the Second World War brought about the inception of a contract administration role for the plant representative office. Contractor costs had to be verified and approved as being reasonable and allowable under the contract. After the war, these administrative contracting officer functions were standardized. In addition, contract administration personnel started to serve in the capacity of evaluating proposals and auditing contract costs for procuring agencies over the broad spectrum of contract types (Ref 35:50-51). The creation of a uniform termination provision in the Contract Settlement Act (1944) greatly facilitated the tasks of the terminating officer in the contract administration activities (Ref 35:52).

The Era of the Weapon System Concept (1953-1963)

In 1947, the United States Air Force was created as a separate branch of the Armed Forces with its own procurement

and contract management activity. Six years later the weapons system concept was introduced for the management of weapons development and production. Under this new concept, system designers, developers, and future operators were brought together at the start of the life cycle of a weapons system. They worked as an integrated unit through the system's development, production and testing phases. Previously, weapon components were not integrated into a system until late in the assembly stage and during the early operational phases. The new concept vastly increased the role and the amount of funding available to major weapon contractors and required additional and more detailed monitoring of the contractor by the contract management activities. Joint Project Offices (later called Weapon System Project Offices) were created as intercommand organizations between Air Materiel Command (AMC) and Air Research and Development Command (ARDC). They were composed, originally, of procurement and engineering personnel. Later, supply, maintenance, and user command personnel were incorporated into the projects offices (Ref 35:56).

The contract management structure was under the control of AMC Headquarters. There were six Air Procurement Districts with twenty Air Regional Offices plus 36 AFPROs at the major contractor facilities. In 1953, the Air Procure-

ment Districts were deactivated and the AFPRO functions were assigned to the Air Materiel Areas having responsibility for supply, maintenance, and spare parts of weapons systems. The Air Regional Offices were re-identified as Procurement Districts (Ref 35:57).

During the 1950s, the weapons system project offices were elevated to division level and their associated procurement functions were decentralized to the division and center level by Headquarters AMC and ARDC. In 1958, an Air Force Inspector General Survey concluded that the AMC structure was suitable for the buying but not for the contract management mission (Ref 35:62). This was reinforced, in 1959, by the General Accounting Office criticism that weapons system contract management was conducive to over pricing, was unfair to small businesses, and gave too much authority to prime contractors (Ref 35:62). Consequently an AMC study was initiated which resulted in the creation of three Contract Management Regions (CMR) in 1960. These CMRs reported directly to Headquarters AMC. The mission of the CMRs was to supervise the contract management activities of AFPRO's, Air Procurement Districts, and Test Site Offices (involved in the administration of testing aspects of contracts) (Ref 35:64).

In 1961, AMC and ARDC were eliminated. Two new commands

were created: Air Force Systems Command (AFSC) and Air Force Logistics Command (AFLC). AFSC was assigned the responsibility for the initiation of major weapons system contracts. AFLC was responsible for system supply and maintenance. The CMRs were transferred from AFLC to AFSC and, in 1962, were redesignated Air Force Contract Management Districts. The Air Procurement Offices and small plant AFPROs were assigned to the districts and redesignated Air Force Contract Management Offices (Ref 35:67).

In 1961, ARDC placed SPO engineering personnel in the AFPROs to provide an on-site technical surveillance capability to contract management. The CMRs then proposed that a development engineering capability be permanently provided the AFPRO and district offices. Initially, it would yield in-plant support to high priority programs and would then be expanded to cover all weapons systems. By 1962, Development Engineering Offices had been established at the field, district, and CMR levels (Ref 35:69-71).

DOD Project 60 (1963-1969)

Throughout the history of contract management, it is clearly discernible that the role of contract surveillance greatly expanded in depth and importance. There were many organizational realignments that were aimed at direction

and control of field operations. Less emphasis was put on the actual management functions in the field. As a result, the cost of contract administration rose to the point where the Department of Defense (DOD) felt the need to cut the activity back to maximize the return on defense contract dollars spent.

Background. In the early 1960's, all departments of the Armed Forces had their own contract management organizations and functions. There was no uniformity in policies and procedures. It created duplication of effort and increased contract costs. Widespread criticism had been directed at the resultant waste of manpower, money, materials, and equipment. Project 60 had been established in May 1962, by DOD Secretary McNamara, to develop uniform contract management practices and to develop alternate plans to consolidate it under one DOD agency (Ref 34:2-3). The project was somewhat restricted in scope because Army Engineering, Navy Bureau of Yards and Docks, Navy Bureau of Ships, research and development, in-house plants, test facilities, and Air Force missile site construction and modification contracts were not considered (Ref 34:4). In 1963, a DOD Project 60 Policy Guidance Committee studied this situation. It recommended a consolidation of all contract management activities under DOD with the direction and control of tech-

nical aspects of contracts under the individual services.

In order to evaluate the existing service and other DOD agencies' contract management practices, the Committee defined the prime contract management functions as

.....enforcing the statuatory and regulatory provisions of a Contract and providing a source of overall general support to the program/project manager. Contract management organizations were to see that contractors met the terms of their contract; they also were to act as an arm of the buying office.....by performing support services, when requested by program managers, that best could be done at or near the contractor's facility.....responsibilities did not include contract execution responsibility, nor did it include the authority for making changes in contract terms relating to scope of work, schedule, prices or technical specifications. Except in purely administrative areas, contract management organizations had authority only to evaluate, assist, survey, analyze, process, and advise on project matters (Ref 34:6).

As a result of the study, a program was recommended, in 1963, to initially improve contract management in its present structure. It would eventually lead to a centralized contract management function within the DOD. Three steps were recommended to implement the program. They were; Step I - Plant Consolidation, Step II - Regional Consolidation, Step III - Complete Consolidation of the DOD contract management activities.

Step I. Plant consolidation put all contracts at a particular contractor location under the domain of the ser-

vice that had the major weapons system contractual relation with that specific contractor. The selection of the service to be responsible for plant cognizance at each contractor was based on the service workload at the plant, and the priority of items produced. To inject stability into the plant cognizance program, plant assignments were also based on long-range requirements (Ref 34:15). A rating system was developed to quantify the criteria for selecting the service organization to be granted cognizance. The approval authority for service plant cognizance assignments was vested in the Office of the Assistant Secretary of Defense (Installations and Logistics). In 1964, the first plant assignment lists were published. DOD Instruction 4105.59, dated 13 October 1964, was developed in order to separate the buying activity and contract administration functions (Ref 34:14). All services endorsed this step of Project 60.

Step II. While Step I was oriented at a DOD contract management program for major plants, Step II was directed at the consolidation of the services and DOD agencies' regional contract administration offices. The objective was the geographically based centralization of the administration of DOD non-major weapons system contracts under either one of the services or a DOD agency. In October 1963, a pilot region was established and tested in the Philadelphia area

which included six states (Ref 34:33). A consultant firm was enjoined to develop the operating plan to be tested. It was decided by DOD to establish eleven such regions across the country under the control of the Defense Contract Administration Services (DCAS), a new component of the Defense Supply Agency. The transfer of regional offices was started on 1 January 1965.

Activation of AFCMD. The Air Force Systems Command's contract administration operation was strongly affected by Step I and Step II of Project 60. Early in 1964, studies were performed by AFSC buying divisions and contract management region personnel to evaluate the organizational alternatives for AF plant management. It was jointly agreed that contract management should not be assigned to the buying divisions. A recommendation was made for the creation of an Air Force Contract Management Division (AFCMD) with the AFPROs, test site offices, and the Western CMR's Program for Improved Contract Management (PIC) operation, as detachments. The central headquarters would have management responsibility over the detachment operations. The authority to establish this new headquarters was granted and AFCMD was activated on 4 January 1965. The three CMRs were phased out in December 1965. The new organization included the support offices of staff judge advocate, comptroller, plans

and management, and information. Functional staff offices of contracts, production, quality assurance, development engineering, and safety and flight operations were also included (Ref 34:48-50). On 1 April 1965, twenty-two plant offices, five test site offices, one PIC detachment, and five Missile Site Construction Detachments (Contract Support Detachments) were officially transferred to AFCMD jurisdiction (Ref 2:61). Since that time the organizational variation within AFCMD was not judged by the authors to be of significant importance to warrant its inclusion in this general contract management history.

Step III. Complete Consolidation of all defense contract administration under one DOD agency is the ultimate objective of Project 60. It would be an integration of the plant and regional consolidation achieved by the first two steps of the Project. It has not been accomplished. Except for the fact that the services do not feel such a step would be in the best interests of their particular weapons system programs, other rationale presented for the delay in implementing Step III was judged to be speculative in nature (Ref 34:68-72). Hence, it was not included. No evidence was found that would indicate that the future will differ dramatically from the present situation.

IV. The Policy Documentation
of the AFPRO-SPO Relationship

The historical evolution of Air Force Contract Administration into the present AFCMD organization was presented in the previous chapter. This chapter is devoted to an analysis of the documentary basis for the AFPRO-SPO relationship. Only directives specifically relating activities of AFPROs and SPOs are included. The search for such directives included DOD publications, HQ USAF, HQ AFSC, and HQ AFCMD publications. Analysis of the existing documentation will be presented in a descending order of organizational layers.

DOD Publications

The fundamental basis for DOD directives lies in the Armed Services Procurement Act (1947). The procuring authority of the Armed Services was consolidated into one federal statute (Ref 13:1-4). DOD implementation of this Act appears in the formal directives and instructions, the Armed Services Procurement Regulations (ASPR), and in the military standards. The DOD issuances are broad policy and procedural guidance documents. Most of these do not specifically delineate the AFPRO-SPO relationship.

The DOD policy for implementation, distribution and

reproduction of DOD Directives and Instructions was stated in a HQ USAF letter, subject: Department of Defense Issuances, dated 29 March 1957, addressed to all major air commands. HQ USAF was responsible for implementation of DOD Directives and Instructions through its established publications media. Distribution to the major air command level was for information and orientation purposes only. No reproduction or further distribution was permitted without prior DOD approval. In addition, only pertinent issuances were distributed to each major air command.

DOD Instruction 4105.59 establishes the contract administration services plant cognizance program. The Assistant Secretary of Defense (Installations and Logistics) (ASD-I&L) administers the program for all DOD components and NASA. Assignments of defense contractor plants to plant representative offices are determined and approved by ASD-I&L (Ref 9:1).

DOD Directive 4105.63 establishes the Military Standard Contract Administration Procedures (MILSCAP) program. The purpose is to introduce a greater degree of standardization, simplicity, and automation in contract administration data and procedures (Ref 10:1).

The above DOD issuances particularly pertain to the unique functions of contract administration services and

practices of plant representative offices.

ASPR Section XX, Part 7, "Assignment of Contract Administration" implements DOD I 4105.59. ASPR 20-700 requires maximum use of contract administration functions under the DOD Plant Cognizance Program by buying activities (Ref 7: 2037). Exceptions to the basic policy where buying activities may perform contract administration functions are listed in ASPR 20-700 (Ref 4:2038-2039).

ASPR I-406, "Procurement Responsibility and Authority", recognizes the continuum of AFPRO-SPO activities. It assigns specific responsibilities for on-site contract administration by contract administration organizations, such as AFPROs. This ASPR clause also specifies functions to be performed when delegated by the SPO. It is explicit in stating that a memorandum of agreement is not necessary for these assigned tasks and that special instructions for contract administration should accompany the contract when assigned for administration (Ref 7:122.1).

MIL-STD-480 establishes a standardized configuration management and control system for prime contractors capable of evaluating complex engineering changes. Allowance is made for AFPROs to manage Class II changes by delegation under the "Minor" deviations clause. "Minor", or Class II changes, are deviations which do not affect primary contract

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specifications in cost, schedule or technical requirements (Ref 12:12).

Headquarters USAF Publications

DOD policy and procedural directives are implemented in Air Force Regulations (AFR) and Air Force Manuals (AFM).

AFR 23-8 outlines the mission of AFSC and requires performance of contract administration for Air Force contracts in plants under Air Force cognizance. Contract administration tasks for other DOD components and NASA are to be performed by agreement between the principals (Ref 15:1). A general delegation of authority is made from HQ USAF to AFSC for contract administration under the DOD Plant Cognizance Program with latitude for negotiation of tasks between non-Air Force SPO's and the AFPROs.

AFR 375-2 delineates the responsibility and authority of the SPO. Any Air Force unit may be required to contribute its specialized services to the program within the authority limits of the SPO (Ref 18:1).

AFR 375-3 further defines management authority in making the System Program Director's decisions directive to any participating organization. His decisions may not be changed by any participating organization in the system program except Headquarters USAF (Ref 19:1).

Air Force Systems Command Publications

HQ AFSC implements authority delegations from HQ USAF by issuance of AFSC Regulations (AFSCR) and AFSC Manuals (AFSCM).

AFSCR 25-2 establishes a "lead division" concept "To define and fix management responsibility for programs and policies which involve two or more AFSC organizations below AFSC headquarters level." (Ref 26:1). Overall direction is vested in a single manager for multi-organization program management.

AFSCR 23-43 in prescribing the mission of a SPO, mentions collaboration with AFPROs in development engineering according to AFSCR 80-12 and in quality assurance according to AFSCR 74-6. Coordination with production and contract administration representatives of AFCMD and AFPROs to resolve problems is also mentioned (Ref 25:3).

AFSCR 74-6 identifies general and specific responsibilities of AFSC headquarters, AFSC product divisions, AFCMD, and AFPRO/TSO (CMO) for quality assurance programs. The product divisions are responsible for: establishing quality assurance requirements in program documentation and contract specifications; participating with the AFPRO in developing a quality assurance plan; and approving the AFPRO plan. During program execution, the product division is to review the

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scope and effectiveness of AFPRO quality assurance activities. Collection, analysis, and maintenance of pertinent quality data is also required of product divisions to update plans and to assure adequacy of corrective action programs undertaken by AFPROs. Monitorship and guidance is the underlying responsibility of product divisions in the AFPRO-SPO relationship (Ref 28:2).

Specific assignment of responsibilities is made to AFPROs to: develop a detailed quality assurance plan; manage execution of the quality assurance plan; determine contractor compliance with requirements; institute corrective action through the contracting officer; and to provide quality reports to the SPO for management usage (Ref 28:3).

The Aeronautical Systems Division (ASD) supplemented AFSCR 74-6 requiring appointment of a management quality assurance monitor in each SPO (Ref 29:1). The ASD Deputy for Engineering is required to develop specific inspection requirements to be performed by the Quality Assurance Representative and to include these in a memorandum of agreement (Ref 30-2).

AFSCR 80-12 outlines the engineering support functions that are assigned to AFPROs under the DOD Plant Cognizance Program. The objectives of AFPRO supportive engineering are to

Reduce total decision-making time

Preserve contractual requirements (performance, schedule, and cost)

Provide close integration of Air Force and industry team efforts to cope with program variations (Ref 31:2).

Command surveillance responsibilities in HQ AFSC are assigned to the Deputy Chief of Staff/Procurement and Production as the office of prime responsibility. The use of the Memorandum of Agreement is specified to clarify normal engineering support functions and to delete or delegate additional functions. If no clarification or changes are needed, a memorandum of agreement is not required. The memorandum of agreement may be initiated by either the AFPRO or the SPO and it represents the mutual agreement for AFPRO engineering support. A broad basis for delegating many other functions is contained at the end of this regulation. Prior approval of such delegations by HQ AFSC is not specifically required (Ref 17:2-3). A list of normal engineering support functions is attached to the regulation specifying surveillance, reviewing, evaluating, monitoring, assisting, and commenting in various technical and engineering management matters. The general format for a Memorandum of Agreement for Engineering Support is also attached to AFSCR 80-12 (Ref 31:5-7).

AFSCR 375-1 specifies management procedures for weapon

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system acquisition programs. It requires appropriate use of the memorandum of agreement between SPOs and AFSC divisions participating in acquisition of weapons systems (Ref 13:3).

AFSCR 375-2 establishes the Management Techniques Application Plan (MTAP). It is a portrayal of the management concepts and techniques to be applied to specific programs (Ref 33:1). A specific requirement to coordinate development of MTAP with AFCMD is stated (Ref 33:3).

AFSC Supplement 1 to AFR 375-4, concerning systems program documentation, requires the SPO to obtain manpower inputs from each AFSC organization which will participate in or will be affected by the program. These participants are to specify their capability to perform the program workload within existing resources and to identify additional requirements (Ref 27:1).

AFSCM 375-1 closely relates AFPRO and SPO configuration management activities. Many tasks are assigned to AFPROs throughout the 18 exhibits in the manual. Special mention is made for AFPROs to advise and be a member of the Configuration Control Board when requested. AFPRO attendance at all configuration management meetings and reviews is required and the AFPRO may directly represent the SPO as agreed. Emphasis is placed on AFPRO observation of contrac-

tor implementation of the configuration identification numbering system and technical data, drawings, and publications system (Ref 20:8). The AFPRO is given authority to disapprove contractor categorization of an engineering change as Class II (Ref 20:175).

AFSCM 375-3 is the System Program Office Manual and it contains a brief but comprehensive description of the various AFPRO functions. The contract administration services unique to AFPROs and the interface relationships with SPOs are outlined. The supportive functions AFPROs provide to SPOs are collected into a three and a half page summary with 8 references to other publications that provide more detail. The requirement for reciprocal information exchanges is stressed. Frequent appropriate references to AFCMD or AFPRO relationships and roles are made throughout the discussion of SPO functions. Specific reference is made to AFSCR 375-9 which was replaced by AFSCR 80-12 in January 1966 (Ref 21:70-74, 76). Attachment 2 to AFSCM 375-3 contains references to many other documents by agency, number, and title.

AFSCM 375-4 establishes policies and procedures for activities during the entire weapon system life cycle. Management actions to integrate the organizational elements are prescribed as the mandatory management standard for AFSC system programs and projects. The background knowledge possessed

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by AFPRO development and industrial engineers of a contractors technical operations permit them to compare new efforts to past performance (Ref 22:112). The role of the Administrative Contracting Office (ACO) and his relationship to the Procuring Contracting Officer (PCO) are thoroughly covered. AFPRO development engineering support to the ACO, along with other AFPRO functions, is described to show the face-to-face communication process. Analysis and interpretation of the technical contract requirements to support the ACO are emphasized. Reference is made to AFSCM 80-11, which has been replaced by AFCMDM 375-1, which concerns AFPRO development engineering support functions. Support provided by the AFPRO production and quality assurance divisions to the SPO is delineated. The assigned contract administration responsibilities and their relationship to SPO responsibilities and need for field support is the underlying rationale (Ref 22:117-128).

AFSCM 375-5 pertaining to system engineering management procedures contains a brief resume of AFPRO development engineering and production functions. The supporting functions, as agreed in a memorandum of agreement, and surveillance of certain contractor activities prescribed in AFSCR 80-12, are reiterated for development engineering. A general statement is included for AFPRO production divisions

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to evaluate and monitor contractor action in the production area (Ref 23:77-78).

Air Force Contract Management Division Publications

The regulations and manuals published by AFCMD headquarters are directives defining the specific, assigned responsibilities and functions of AFCMD and its subcommands. Throughout these publications, implementation of specific Armed Services Procurement Regulations and higher level Air Force directives are referenced. The relationship of AFCMD field organizations to SPOs and other buying activities are delineated. A distinction is made between assigned and delegated responsibilities. Typical documents defining functional responsibilities are

AFCMDM 74-1, Procurement Quality Assurance Program

AFCMDM 75-1, Traffic Management in Air Force Contract Management

AFCMDM 84-1, Industrial Engineering

AFCMDM 84-4, Industrial Support

AFCMDM 375-1, Development Engineering.

The specific documents discussed in this chapter were selected from the regulation indices of DOD, HQ USAF, and HQ AFSC. The titles in some cases do not indicate the scope of the content. Additional documents with related titles were examined. Any publication in the regulation and manual sys-

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tem that may have been overlooked are obscure and would not be "visible" in an operative's search for job related policy guidance.

The regulations and manuals reviewed in this chapter described the responsibilities, activities, and authorities upon which the organizational and functional relationships of the AFPRO and SPO are based. The next chapter presents an analysis of the AFCMD, AFPRO and SPO organization and functions.

V. The Functions and Organization of
the AFCMD, the AFPRO, and the SPO

In the preceding chapters, the contract administration environment within the USAF was shown to be a system of integrated subelements. The missions of the participating agencies were presented to show their relationship and role in the weapons system acquisition process. A brief history of contract administration was provided to show the effects of evolution upon the organizations and their environment. A presentation of the existing policies behind the AFPRO-SPO relationship was made to emphasize the documentary basis of the "foundation" organizations in the weapons system acquisition process.

The purpose of this chapter is to analyze the organization and functions of the division levels of the AFCMD, AFPRO, and SPO to determine explicitly how these organizations are structured to fulfill their roles in the contract administration environment. A comparative analysis will be presented in order to show the extent of correlation in the organizations' functional areas. It is beyond the scope of this effort to be completely comprehensive in this analysis.

A substantial portion of the AFCMD operation is conducted on behalf of non-AF government procuring agencies. The

details of the AFCMD interface with the Army, Navy, NASA, DSA, and other government organizations will not be presented in this functional study of AFCMD and AFPRO organizations. A quantitative indication of the extent of this interface is found in Appendix C, Tables X through XIII.

The Air Force Contract Management Division (AFCMD)

In any discussion of the mission and functions of an organization, a proper perspective should be maintained of the peculiarities of its relationships to the environment which it serves. An organization study then becomes more than an analysis of a static structure at any given point in time. Maj. Gen. Daniel E. Riley, USAF, the Commander of AFCMD from October 1965 through July 1969, provided this insight into environmental considerations.

The ideal degree of active government participation in a contractor's system management is a delicate balance between maximum protection of the taxpayer's interests, and minimum distortion of the free enterprise system. It would achieve what might be called 'responsive visibility', assuring that the Government gets sufficient information and control to see program progress and problems at any given moment, and to step in effectively with its own management resources only where and when it becomes apparent that the contractor's effort is inadequate and headed for trouble.....The amount of autonomy given to industry, as well as industry's profit, is related directly to the degree of risk which industry assumes, and to the element of competition in the procurement environment. (Ref 5:20). The government is as eager as industry to attain the

closest thing possible to an uncomplicated 'we buy-you sell' relationship. (Ref 6:9).

The AFCMD is one of the seven divisions and five development and test centers under the mission jurisdiction of HQ AFSC. An "integrated" organization chart of the division is included as Fig. 6. An analysis of the responsibilities of the division's functional areas follows.

AFCMD Command Section and Technical Assistant. The AFCMD Command Section is responsible for executing command and management direction over AFCMD to assure its mission accomplishment. The Technical Assistant serves in an advisory role to the Commander in areas that relate to the performance of the contract management operations of the division (Ref 37:2-1).

The Chief of Staff. Supervision and coordination of the headquarters staff is the responsibility of the Chief of Staff for activities under his control in order to support command operations, objectives, and administration. Subordinate to and co-located within this area are the following staff disciplines:

The Plans and Management Office establishes policy guidance, exercises staff supervision, and provides guidance and assistance in the areas of command planning and management. It interprets and implements higher headquarters poli-

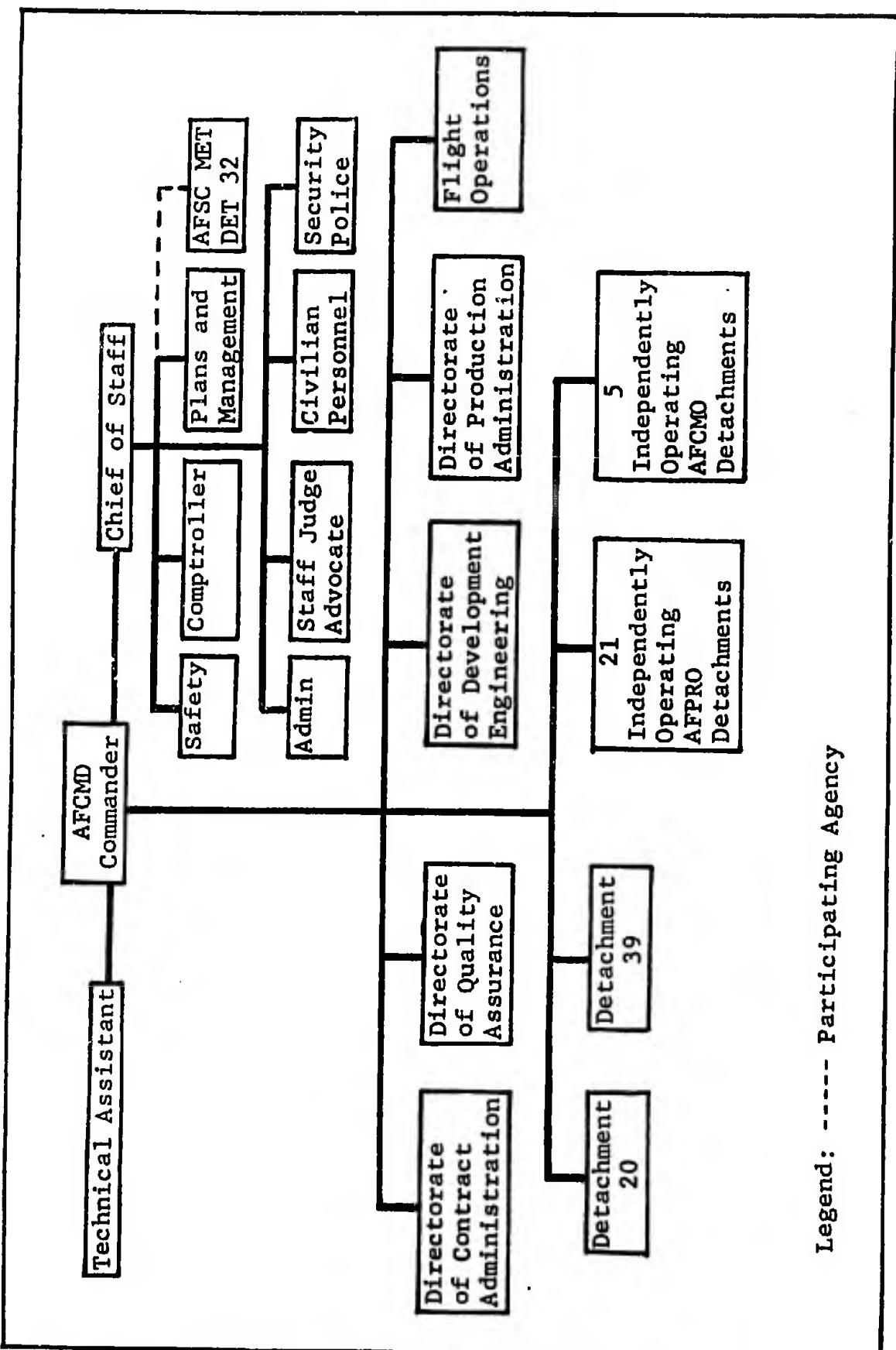


Fig. 6. AFCMD Organization Chart (From Ref 37:1-0)

cies. Procedures and controls are established for the functions performed in its plans, programs, and presentations divisions. Staff surveillance is exercised over field and Headquarters staff performance of functions that fall within its area of specialty. The office also maintains liaison with the plans and programs offices of AFSC, Army, Navy, NASA, and DSA (DCAS) organizations in order to facilitate the AFCMD planning and programming functions (Ref 37: 6-1).

The Comptroller is the advisor to the Commander in the areas of budget, cost analysis, accounting and finance, data automation systems, and management analysis. Five divisions have been established under his control and supervision to deal with each particular area. He also maintains staff surveillance over comptroller activities at the AFCMD detachments (Ref 37:7-1). The geographical organization of this activity is shown in Fig. 7. It is a nationwide network centralized in four field locations that is responsible for making payments to sixty-two contractors performing work for the Air Force. Three of the locations are incorporated into AFPRO detachments. The fourth location has been established as a separate AFCMD detachment because of the volume of payments and the number of contractors it pays. This organization, Detachment 20, shall be .

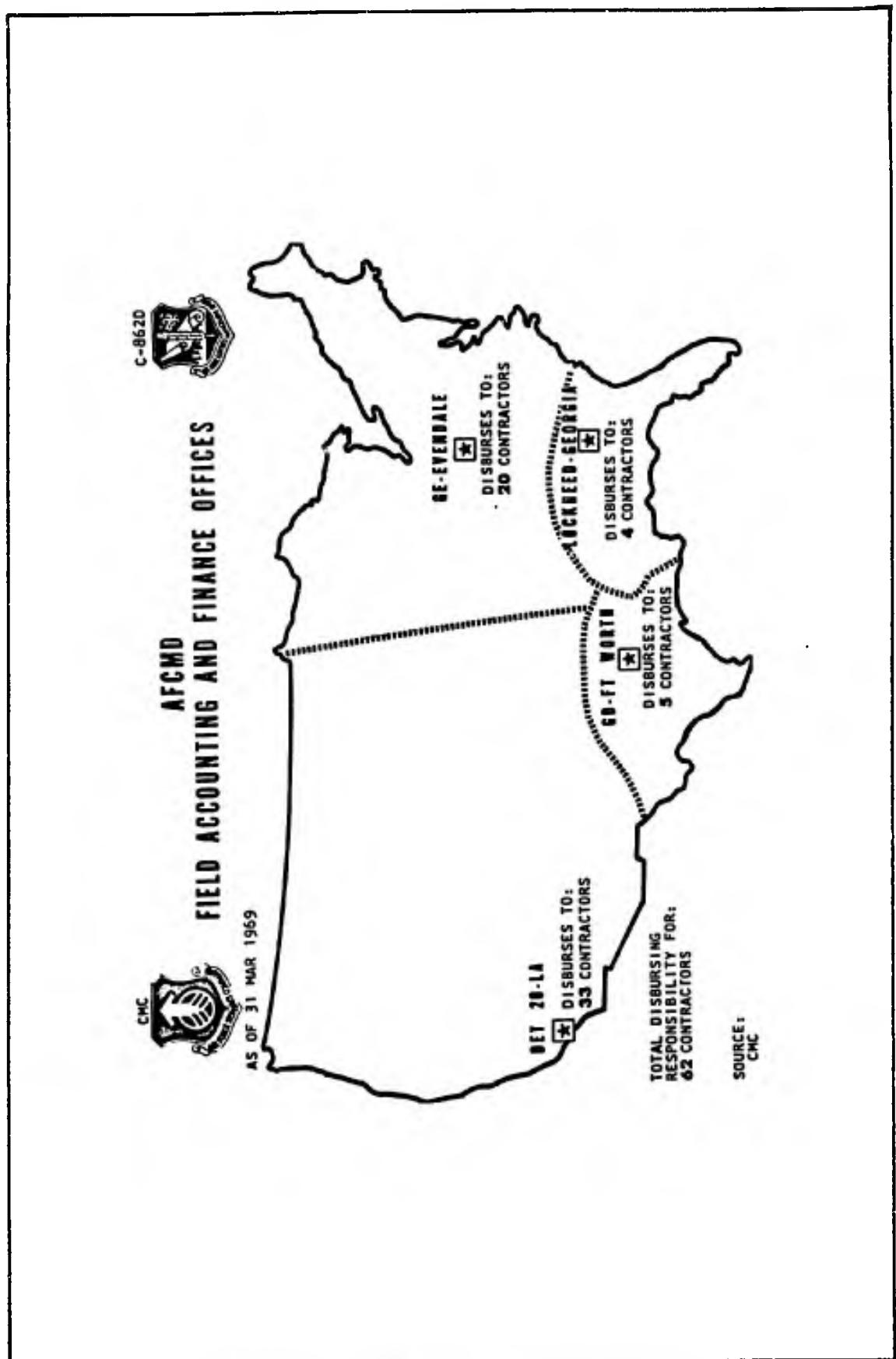


Fig. 7. AFCMD Accounting And
Finance Offices (From Ref 36:88)

briefly discussed later in this section.

Other Staff Functions under the supervision and control of the Chief of Staff were not considered germane to the subject area of the thesis. They were not studied in any great detail but are presented in order to give a broad view of the Chief of Staff's activities.

The Staff Judge Advocate is the legal advisor for all organizational elements of AFCMD in matters of military, civil, and contract law and in the preparation of contracts. The Procurement Law and Patent Law Divisions have been established to render legal services in the contractual aspects of contract administration (Ref 37:5-1).

The Administration Staff plans, programs, and manages the AFCMD administrative services program, advises the Commander on administrative matters, exercises staff surveillance and provides staff guidance to staff and field administration functions (Ref 37:8-1).

The Safety Office advises and exercises staff supervision over ground safety and contractor explosive safety programs. It also plans, establishes and evaluates the AFCMD Flying Safety Program (Ref 37:8A-1).

The Central Civilian Personnel Office plans, directs, and administers the Civilian Personnel Program for AFCMD. It fulfills the same function for Space and Missiles

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Systems Organization (SAMSO). The employee relations, employment, personnel management, office management, classification, and career development divisions are functional subelements of the office that have been established in order to effectively accomplish office objectives (Ref 37: 10-1).

The Security Police Office is responsible for the staff supervision, guidance, direction, and operation of a security program that is appropriate for the accomplishment of AFCMD objectives (Ref 37:9-1).

The AFSC Management Engineering Team (MET) Detachment 32 is not under the supervision and control of either the Chief of Staff or the AFCMD Commander. It is a field extension of the Manpower and Organization Office of HQ AFSC installed in AFSC divisions. It provides assistance and services to the division commanders in matters of management engineering and improvements, organization, manpower requirements, and utilization. The detachment develops manpower standards to evaluate and maintain the utilization of manpower resources. To accomplish these objectives, it has two subunits, the manpower and organization and the management engineering branches (Ref 37:4-1). All of the functional elements of HQ AFCMD provide technical input/advice regard-

ing AFCMD manpower requirements in their respective areas, as requested by MET. The AFCMD Manpower Authorizations, Current Manning, and Work Force Educational Levels are presented in Appendix C, Tables IV, V, and VI.

The Directorate of Contract Administration exercises Staff supervision over the contract administration functional areas that pertain to pricing, insurance, overhead, contract termination, the contractor's purchasing systems, and small business and labor surplus matters. It interprets and implements higher Headquarters policy and establishes procedures and controls for the efficient operation of detachment level contract administration. It is the office of primary responsibility for contractor data management and the focal point for all General Accounting Office (GAO) matters. To accomplish its objectives, it operates through its plans and projects, contracts, purchase methods analysis, contractor overhead, pricing, and terminations divisions (Ref 37:11-1). Appendix C, Tables VII through XII depict the AFCMD major programs, relative size of the detachments, annual cost of operations, number of assigned prime contracts, types of contracts administered, and total dollar obligations.

The Directorate of Production Administration provides staff supervision, guidance and evaluation to the detachments in the areas of industrial engineering, production, industrial property, plant clearance, systems logistics, and traffic and packaging. It interprets and implements higher Headquarters policies and establishes procedures and controls for the detachment to utilize in the area of industrial operations. The plans and policies, industrial materiel management, industrial support, industrial engineering, systems logistics, and transportation and packaging divisions are subunits of the directorate for proper execution of each area of industrial operations (Ref 37: 12-1). A graph depicting the value of government property administered is presented in Appendix C, Table XIII.

The Directorate of Quality Assurance has the responsibility of assuring that the AFPRO and AFCMD detachments' quality and reliability programs are accomplishing their goals with respect to the materials and services that are procured, installed and tested. It is additionally responsible for the implementation of higher headquarters policies into procedures and controls for detachment utilization in the quality assurance program. The directorate serves as a technical quality assurance policy consultant to Headquarters, AFSC. The policies and procedures, quality assur-

ance engineering, and materiel quality divisions within the directorate assist in the accomplishment of these tasks (Ref 37:13-1). The number of contracts requiring AF Quality Assurance Participation is presented in Appendix C, Table XIV.

The Directorate of Development Engineering is responsible for implementing and maintaining a uniform and consistent AFSC development engineering policy between the detachments and buying activities. Staff supervision and assistance is given to the detachments in the areas of

.....engineering management, engineering data, technical manuals, configuration management, value engineering, proposal review, subcontracting engineering practices, design reviews, reliability and maintainability programs, and engineering test programs. (Ref 37:14-1).

Pie charts depicting the distributions of the Development Engineering effort and the Development Engineering technical support to programs are presented in Appendix C, Tables XV and XVI.

Flight Operations is an advisory staff position to the AFCMD Commander that is filled by the Detachment 39 Commander whose functions will next be described.

Detachment 39 is the primary AFCMD staff agency for flight operations. Its duties involve flight acceptance of new or modified aircraft and flying support of contract programs. Surveillance is maintained over contractors who have

bailed (loaned) aircraft for which the government is maintaining flight risk. The detachment administers the contractor and AF flight training programs for these aircraft along with the aircREW standardization program. Operating subdetachments are maintained at the contractors' facilities that are under AF plant cognizance and that are producing new and/or modified aircraft. The flying personnel assigned there are under the flight operations supervision and control of the Detachment 39 Commander. They work in close coordination with the resident AFPRO and the Detachment 39 Commander (Ref 37:59-1). A sample of flight acceptance activity is provided in Appendix C, Table XVII.

Detachment 20 operates a mechanized accounting system for financial and materiel accountability of procurement contracts. It provides the data necessary to support contract administration and payment of contractors and disburses public funds. Accounting and Finance support is given to all the service plant cognizance officers within its geographical area. It accomplishes its objectives through its accounts control, commercial services, and data automation divisions (Ref 37:58-1).

The Air Force Contract Management Office (AFCMO) performs secondary contract administration at Air Force Test Centers. A listing of the five CMO locations is in Table

XVIII, Appendix D. Surveillance is maintained over the contractor's test operations, modifications, and/or installations. They provide guidance and monitor the contractor's quality assurance programs. Accountability and control of government property being used by the contractor during testing is the responsibility of this office. The AFCMO also serves in a capacity of a coordinator with the testing center with regard to base support items needed by the contractor. In order to accomplish its mission, the typical AFCMO is divided into the command section, plans and administration, contract administration, production administration, and quality assurance functional divisions (Ref 37: 47-1). The operative nature of each of these divisions is similar to those of an AFPRO.

The Air Force Plant Representative Office (AFPRO)

To provide an in-plant contract administrative extension of the buying activities and System Program Offices, AFCMD currently has in existence twenty-one AFPROs at the contractor plants under AF cognizance. They are listed in Table XIX of Appendix D. Although there is much commonality in AFPRO functions among the 21 AFPROs, certain basic differences should be mentioned before commencing an organizational analysis of the "standardized" AFPRO.

First of all, each AFPRO must conduct its contract administration activities in such a manner that it integrates the interdependent buying agency desires, contract specifications, contract administration directives and regulations, and the contractor's management system. The output or objective is a systems oriented contract product or service for the buying agency. This is illustrated in Fig. 8. The nature and extent of each AFPRO's integration role differs because of the variation of inputs into the AFPRO for integration and because of differing outputs.

Secondly, when the AFPRO contract administration integration role varies widely, the operating environment of that AFPRO is affected and a mutual interaction of internal and external environments occurs. This is precipitated by the fact that an AFPRO may provide services for a number of buying activities in a wide range of contract types and outputs.

It is important to understand the above situation before attempting to analyze the "standardized" functions of an AFPRO organization. Its omission could very well lead to the erroneous conclusions that all AFPROs are exactly the same and can perform identical functions.

With this in mind, the AFPRO "standardized" organization and functions will now be presented. The "standardized"

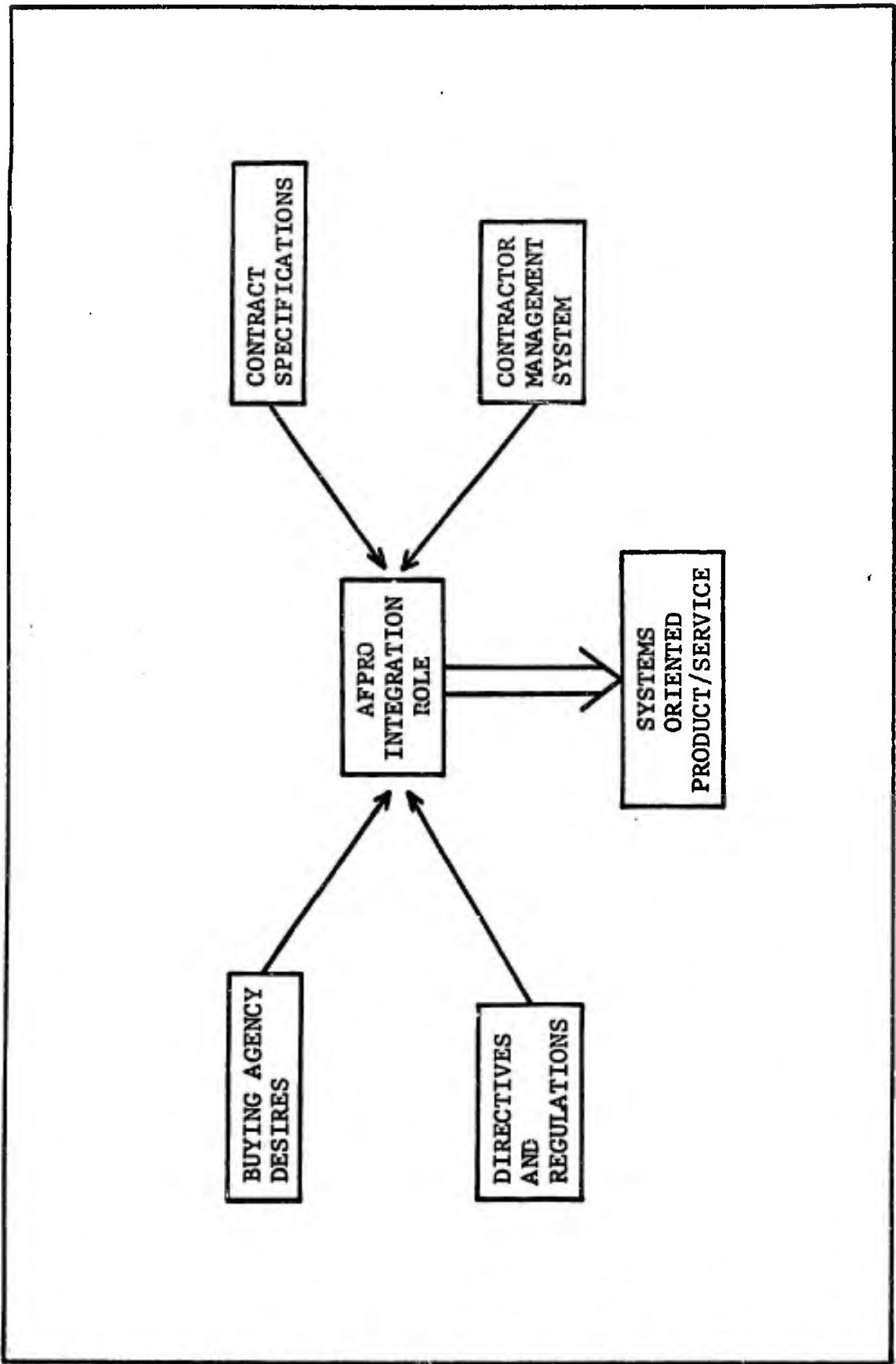


Fig. 8. The AFPRO Integration Role

AFPRO organization chart is shown in Fig. 9.

The Detachment Commander/Air Force Plant Representative (AFPR) is responsible for the accomplishment of the plant cognizance program for contract administration at the plant. He observes contractor operations to protect the interests of the government. The ground and explosives safety functions are under his direct jurisdiction (Ref 37: 17-1).

The Plans and Administration Division advises the AFPR and staff on detachment plans and administrative matters. It is responsible for the development of all detachment plans concerning the conduct of AFPRO operations, utilization of resources (men, money, materials), and organizational functional alignments (Ref 37:20-1).

The Contract Administration Division. The Administrative Contracting Officer (ACO) is responsible for assuring that the contractor performs in accordance with the written intent of the contract in order to protect the interests of the government. On an as needed basis, he determines the facts under the contract. In this capacity, the division approves the contractor purchasing systems, cost factors source lists, financial procedures, and salary and benefit plans. The division plays a large role in the negotiation of overhead rates, billing rates, spare parts, contract

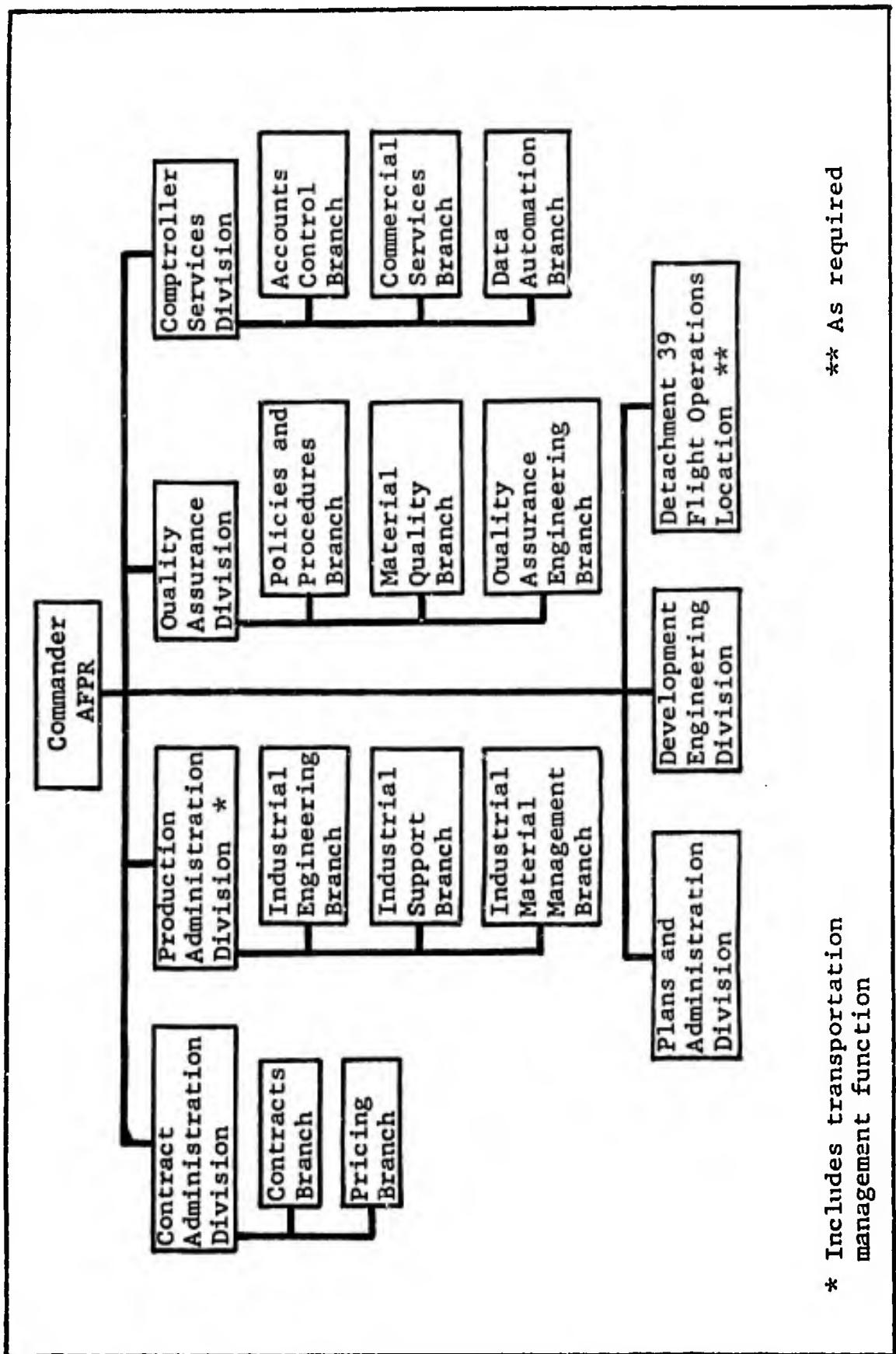


Fig. 9. AFPRO Standardized Organization Chart
(From Ref 37:16-0)

change notification, facility rent and utilization, and contract terminations. It evaluates and reviews contractor proposals, subcontractor operations, the contractor cost estimating system, and the financial ability of the contractor to perform the contract (Ref 37:21-1). A contracts and a pricing branch are established under this division to accomplish ACO objectives.

The Production Administration Division provides supervision and guidance to the contractor's functional areas of industrial engineering, industrial support, material, transportation, packaging and materials handling in production and delivery contracts. It evaluates the contractor's traffic management system and coordinates it with the AFPRO staff, buying agencies, and other government agencies concerned with transportation. Contractor proposals are evaluated to determine if the contractor has the production capability to perform the contract. The division reviews the schedules, labor, materials, facilities, and tooling requirements of the contractor to ascertain if the items required by the contract will be delivered in a timely and economical manner. Evaluation is made of contractor "make or buy" proposals to determine the more economical alternative consistent with the contract production requirements. The division is normally subdivided into the industrial engineering, industrial

support, and industrial material management branches. Under austere manpower conditions, the first two branches are consolidated into the Industrial Management Branch (Ref 37:22-1).

The Quality Assurance (QA) Division manages the functions concerned with assuring the quality and reliability of products and services furnished to the buying activity by the contractor in accordance with the contractual requirements. A quality inspection program is established at the plant and is based on the number and types of goods and services produced by the contractor and on the contract requirements. It is an implementation of the AF Quality Assurance Program. Quality assurance is a continuous program to assure contractor performance and a quality product throughout the entire contractual period. Inspection points are established by the buying activity and the plant representative, to make sure there is adequate control over the contractor's product, process, and service. QA is responsible for the identification of quality "defective" areas in contractor operations and for the reviewing, approving, and monitoring of contractor corrective actions to overcome deficiencies. Finally, the division accepts the contract end items for the government. The policies and procedures, quality assurance engineering, and material quality branches are subunits of the division that implement the objectives of the quality assur-

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ance program (Ref 37:23-1). Under austere manpower conditions, the first two branches are consolidated into a policies, procedures, and engineering branch.

The Development Engineering (DE) Division serves as the extension of the buying activity to perform technical effort and direct engineering support that required plant-level continuous attention. The AFPRO/SPO Memorandum of Agreement defines the nature and extent of AFPRO (DE) support to the buyer. The division has the general responsibility of surveillance over the engineering management, configuration management, systems effectiveness, development test and evaluation, and value engineering efforts made by the contractor in the technical areas of the contract. It helps to monitor and orient the ease of contract evolution from the development to the production phases and assists the buying agency in the evaluation and negotiation of engineering change proposals as requested (Ref 37:24-1).

Detachment 39 Flight Operations Location is established in an AFPRO on an as needed basis to provide the AFPR with supervision and guidance over aircraft flight acceptance/safety and standardization/evaluation of flight tests and acceptance of aircraft (Ref 37:25-1). The functions of Detachment 39 were presented on page 82 of this chapter.

The Comptroller Services Division is established, if required, at an AFPRO, to perform the same functions that Detachment 20 exercises (see page 83, this chapter). The AFPROs that possess this division within their organizations are shown in Fig. 5-2 and the rationale for their existence is given on page 76 of this chapter.

Project Organization Within An AFPRO. On an as-needed basis, the basic "standardized" AFPRO structure is projectized to give the proper emphasis to the contract management of a major weapons system program contract in existence at a particular contractor's facility. An example would be the Minuteman Missile division of the Boeing/Seattle AFPRO. In the case when an AFPRO provides contract administrative services to more than one contractor, AFPRO project oriented divisions are set up for each contractor. The Ogden AFPRO, with its Thiokol and Hercules Divisions, is an example of such a situation. The Hughes AFPRO, because of the geographical separation of the Hughes plants, has set up project divisions on a geographical basis, e.g., the Fullerton and Tucson Divisions. The Ogden AFPRO also has operating divisions under the control and supervision of its assistant for the Minuteman Program at the five Minuteman Missile Sites. In general, the unique and particular requirements of each AFPRO-contractor-buying activity relationship dictates the

extent of variation/additions that are necessary to the "standardized" AFPRO organization. The adjustments are necessary to accomplish the objectives of the plant cognizance program in support of the major weapons system acquisition process.

In summary, the AFPRO serves as an in-plant integrated team of functional disciplines - a contract management extension of the government buying activity at the contractor's facility. It evaluates the contractor's management system and determines whether or not the contractor is actually using the system. The AFPRO monitors the contractor's performance, planned versus actual, from the quantity, quality, cost, and time viewpoints, on behalf of the buyer. It serves as an indispensable communication and coordination bridge across usual geographical separation between the government buying activity and the contractor.

The System Program Office (SPO)

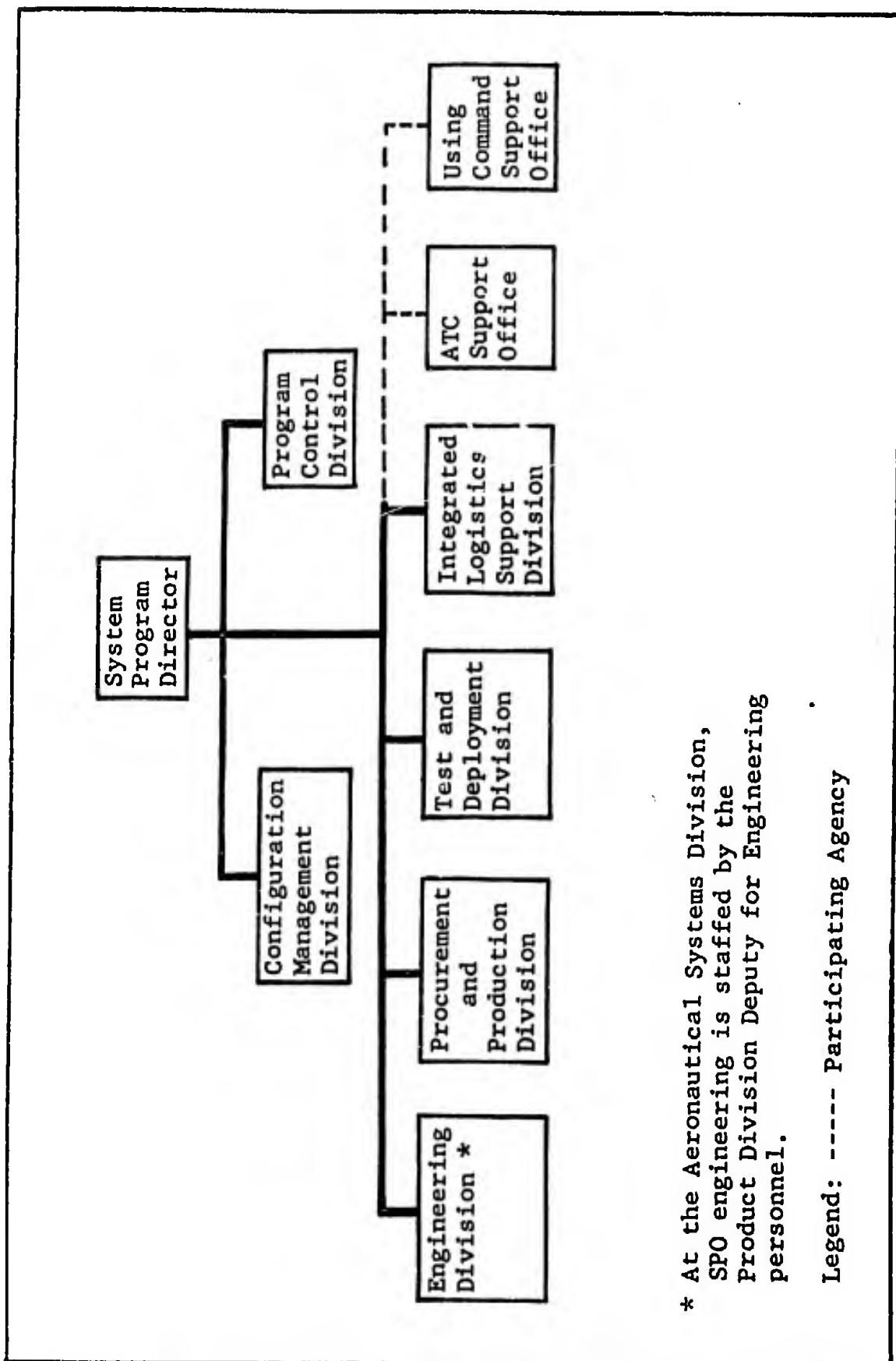
The major weapon systems needed to fulfill tomorrow's national defense program are the joint responsibility of today's military-industrial complex. Within the USAF, the responsibility for the design, development, test and evaluation, and production of new weapons systems is vested in the System Program Office (SPO) of the Air Force Systems

Command product divisions. The SPO is also responsible for the integration of all system components within the particular weapon system prior to its entry into the operational USAF inventory.

Although the weapon system produced by each particular SPO differ vastly, there is, nevertheless, a "standardized" SPO organization to implement the acquisition of new weapon systems. It is presented in Fig. 10. An analysis of the SPO functional areas is given below.

The System Program Director (SPD) is the manager of the approved systems program during the definition and acquisition phases of the weapon system life cycle. He plans and manages the actions of participating organizations in implementing the system program. He serves as the communications focal point with the contractor and all outside organizations. The program is executed in conformance with the System Package Program. The SPD can make changes to the program in accordance with higher headquarters directives. He is ultimately responsible for the coordination of all functional areas under his supervision to insure delivery of an operable and supportable system into the inventory (Ref 25:1-2).

The Configuration Management Division is the focal point for specification control and hardware configuration status (identification and control). Engineering changes to both



* At the Aeronautical Systems Division, SPO engineering is staffed by the Product Division Deputy for Engineering personnel.

Legend: ----- Participating Agency

Fig. 10. The "Standardized" SPO Organization Chart
(From Ref 25:6)

hardware and documentation are identified and controlled.

The Division provides the Secretariat for the Configuration Control Board (CCB) (Ref 25:2).

The Program Control Division is responsible for the program's planning, programming, correlating, documenting, financing and reporting functions. It develops program schedule and funding requirements and monitors and reports program status. Program Control advises the SPD on resource management within the approved program and initiates and coordinates changes necessary for internal balance. It serves as the central repository for all program documentation (Ref 25:2).

The Engineering Division provides systems analysis, engineering, integration, aerospace ground equipment (AGE) and its integration, and technical support to the SPD. It manages and conducts specialty engineering programs and coordinates with the integrated logistics support division for the logistics support of these specialties. Systems effectiveness and trade-off studies are conducted to establish or validate design parameters. The division is the repository for detailed knowledge on the technical/time progress of the program subsystems. It is responsible for insuring that current technology and intelligence estimates are provided for in the system (Ref 25:2-3).

The Procurement and Production Division directs and manages all SPO procurement and production functions through its procuring contracting officers and production management officers. It develops advanced plans and updates plans as needed. The division acts as the focal point for all contract negotiations. Review and monitorship of contractor operations are maintained in conjunction with field contract management activities. AFCMD detachment collaboration is fostered to resolve procurement/production problems within the program. The division also coordinates and expedites procurement of all activities external to the SPO in order to maintain proper systems orientation (Ref 25:3).

The Test and Deployment Division identifies the necessary test planning factors, objectives and schedules, and coordinates the test plans developed with the testing agencies concerned. It approves government and contractor test plans and reviews, evaluates, and approves test reports. The division develops and implements system deployment, installation, check out plans at test and operational sites. It performs the necessary planning in support of using command testing of the system (Ref 25:3).

The Integrated Logistics Support Division is the SPO focal point for logistic support (supply, maintenance, transportation) of the system through the definition and

acquisition phases. It provides logistics input into system documentation, evaluates the logistics aspects of contractor proposals and participates in system requirements and design reviews. The division also participates in system testing in order to evaluate system supportability. Finally, the division participates in the planning activities preliminary to the transfer of appropriate system management responsibilities from AFSC to the user and AFLC (Ref 25:4).

The Air Training Command (ATC) and Using Command Support Offices are liaison offices that report to their respective major air command headquarters. Their purpose is to incorporate training and using command requirements into the system and to keep their respective commands apprised of the status and potential availability dates to the users of the system.

Comparative Analysis of Organizations and Functions

The preceding analyses of the AFCMD, AFPRO, and SPO organizations and functions clearly indicate that there is a close relationship between the organizations. HQ, AFCMD basically serves in a policy guidance and supervisory role over its 21 detachment AFPROs. The SPO is responsible for the management of its weapons system program. The AFPRO

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provides the SPO with an "on-the-spot" contract management capability in regard to those functions that are required by the Armed Services Procurement Regulations and those functions which the SPO delegates to the AFPRO for accomplishment via the Memorandum of Agreement. The macroscopic relationships can be simply illustrated by means of the schematic diagram in Fig. 11.

The schematic is very limited in nature. It only shows the "big picture" of the AFPRO-SPO functional interface that is based on the analysis of this chapter. However, it does point out one organizational anomaly. There is no SPO counterpart for the AFPRO quality assurance function. From an organizational analysis viewpoint, this is rather unusual when 46.6% of the authorized AFCMD manpower in the field detachments is devoted to contractor quality assurance surveillance (See Appendix C, Table IV).

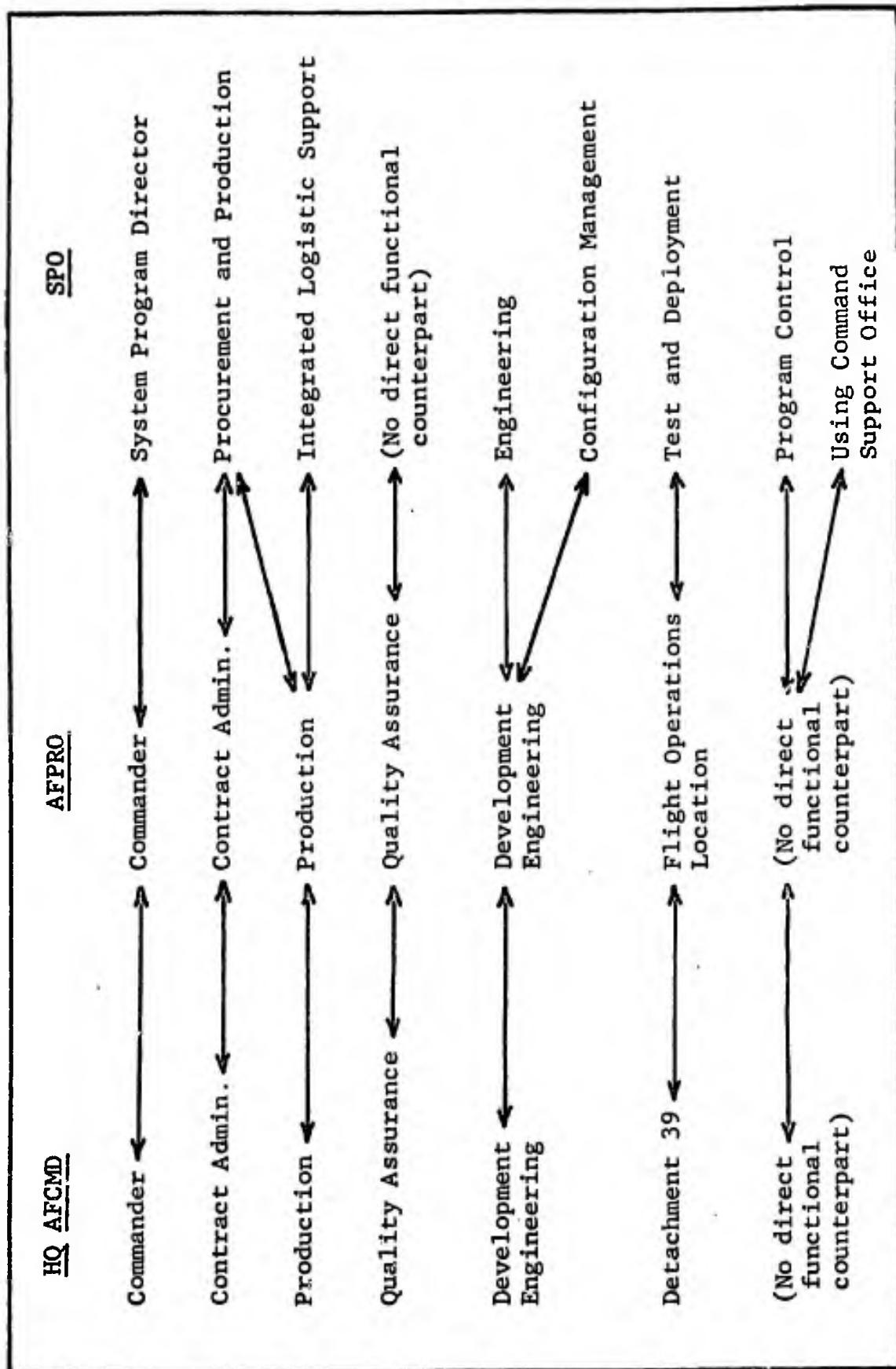


Fig. 11. AFCMD/AFPRO/SPO Organization Functional Relationship

VI. The Role of the AFPRO

The preceding chapters have described the history and systems orientation of the contract management environment of the USAF. The existing basis documentation for the AFPRO-SPO relationship was presented. An analysis was made of the official organization structure and functions of AFCMD, AFPROs and SPOs.

The purpose of the following three chapters is to present the viewpoints of the operating personnel within these organizations concerning the role of the AFPRO, the AFPRO-SPO relationship, and the AFPRO-SPO Memorandum of Agreement. The general objective is the establishment of both the adequacy and extent of alignment of the operatives' viewpoints within these organizations toward the three subject areas. A correlation is made between the organizational viewpoints and between these viewpoints and the basis documentation. The subject matter of this chapter will concern itself with the role of the AFPRO. The questions used to obtain this information via the interview technique are presented in Appendix A, Part I.

The AFCMD Viewpoint

Role of AFPRO. The HQ, AFCMD command section and directorate chief level personnel, in general, visualized the

role of the AFPRO as being an extension (the eyes, the ears, and the arm) of the SPO at the contractor's facility for contract administration. Although primarily involved in post-contract award administration, it was felt that the AFPRO can serve in a pre-contract award capacity in order to enhance the SPO's objectives. The purpose of the AFPRO was further clarified to be the contract administration arm of the SPO for major weapon system contracts to assure that the contractor complies with the terms of the contract as written by the SPO. In this manner the AFPRO monitors the orientation of the contract product toward the contractual specifications and the best interests of the government. The AFPRO additionally fulfills obligations delegated to the AFPRO by and on behalf of the SPO along with the management of government assets being used by the contractor.

Functional Support of AFPRO Role. In order to provide support to the AFPRO role, HQ AFCMD directorate personnel provide policy guidance and direction, and interpret higher headquarters' regulations and the ASPR for the AFPRO detachments. Staff management assistance and support are given to each of the AFPRO functional areas for the resolution of problems beyond their capability. HQ AFCMD visits are made to determine the extent to which the AFPROs are carrying out their responsibilities and to insure consistency in applica-

tion of functional procedures. Assistance and support are also provided in the logistics area of resources (men, money, and materials) needed to carry out AFPRO operations. Highly specialized guidance and direction are given to the AFPROs that possess flight operations detachments and comptroller services divisions.

Role Support Documentation. The basic guiding documentation that HQ AFCMD uses to assist in its support of the AFPRO role is the Armed Services Procurement Regulation (ASPR). The Department of Defense Directives and Instructions concerning the Plant Cognizance Program were also cited as basic documentation. NASA, Army, Navy, Air Force, and Air Force Systems Command regulations and manuals were interpreted as buyer policy guidance that implements the basic documentation. At these levels, it was identified that the documentation starts to take on a functional orientation. Using all of the documentation as a broad base from which to proceed, HQ AFCMD has prepared its own regulations and manuals for each of the functional areas of an AFPRO. Their intent is the provision of a mechanism for the standardization of operative procedures in support of the buying activity.

Management Functions. Within the framework of the existing documentation, the AFCMD directorate personnel serve in the basic capacity of providing policy direction, staff assist-

ance, and evaluation of AFPRO performance. Staff visits are made to the field locations to determine the extent of standardization of procedures and cross fertilization of ideas between AFPRO organizations. This evaluation, supplemented by field reports, serves as the basis for additional guidance needed to meet the peculiar needs of the detachments. The HQ personnel also provide the interface with the AFSC product divisions, AF and extra-AF levels in order to support field activities. Periodic reviews are made of AFPRO operations in order to ascertain the justification for AF cognizance at each plant under AFCMD.

Innovations. In response to the question concerning innovations established because of inadequate or the lack of policy guidance, HQ AFCMD interviewees commented that it was their job to innovate. Such action was required in order to expand upon higher headquarters' directives and make them usable at the field detachments. In order to accomplish this innovation, the production, development engineering, and quality assurance directorates have prepared and transmitted to the field for implementation AFCMD manuals and regulations concerning these activities. Their scope was left broad enough to allow for their integration into each AFPRO's particular functional management scheme. A quarterly management reporting system was insti-

tuted to keep the headquarters aware of status, progress and problems in the field. Headquarters personnel served as innovators in defining AFSC efforts in property administration and the expansion of the AF accounting and finance procedures to include the disbursement of central procurement funds on contract. A management information system was generated by the AFCMD comptroller staff to properly orient the surveillance role of the AFPROs over the acceptability and reliability of contract management reports and information systems. Case Study Letters are prepared by the Directorate of Contract Administration on all the existing decisions concerning contract costs. They are distributed to the detachments to serve as precedents on future cost determination issues. The Systems Command Resource Evaluation (SCORE) Report, used by HQ AFSC for five-year planning against programs, was expanded by the Plans and Administration personnel at HQ AFCMD in order to account for personnel utilization by AFPRO, function, and program. It is useful to the AFSC MET Detachment 32 in the areas of new program manpower space projection and the actual transfer of AFCMD manpower spaces.

Role Support Problems. With regard to problems experienced in support of the AFPRO role, the HQ AFCMD personnel all agreed that allocation of resources was an

important problem. The organization was cited to be under-strength in manpower assignments and they are not properly time sequenced into the AFPROs in order to support the SPO. The use of the Contractor/AFPRO personnel ratios was considered to be a subjective and inefficient means of assigning manpower. The standardization and the adequacy of reports from the field detachments to HQ AFCMD was classified as weak. A number of AFCMD directorate chiefs remarked that the geographical dispersion of the AFPROs and the unique relationship of each AFPRO with its contractor created situations rather than problems in the areas of communication, coordination, planning, and understanding of responsibilities. These situations were considered to be normal and the environment should be flexible enough to deal with these peculiarities. It was reiterated that the primary responsibility of the AFPRO was to directly support the SPO in accordance with the broad guidelines of higher AF organizations. An additional problem area was pointed out to be the fact that the SPOs of the product divisions of AFSC do not have very well defined quality assurance functions while the largest part of an AFPRO's effort was directed toward quality assurance in support of the SPO. In conclusion, there was wide agreement among the HQ AFCMD personnel that the SPO personnel did not understand the role of an AFPRO in the weapons system acqui-

sition process.

The AFPRO Viewpoint

Role of AFPRO. The AFPRO commanders and division chiefs interpreted the role of the AFPRO to be the resident plant office of the USAF for assuring that the contractor is performing in accordance with the contract schedule and specifications. It serves as an on-site support organization or extension of the buying activity. In this capacity, it was remarked that the AFPRO frequently supports numerous purchasing agencies or SPOs. Consequently, the amount of AFPRO support is constrained by its resources, capability, present workload, the ASPRs concerned with Contract Administration, and the extent of authority delegations from the buying activities. The AFPRO was seen as a "mediator" between the contractor and the purchasing agency to protect the government's interests and to present the contract to the contractors in a more workable light. The co-location with the contractor and familiarity with his management system were stated to give the AFPRO a unique capability to perform these tasks. The AFPRO is ideally situated for the added responsibility of monitoring government-owned plants and facilities used by the contractor.

There was a small degree of variation from the majority

statement of the AFPRO role stated above. It is represented by the following points. Administration of the contract as written was to be performed in the best interests of the government and was irrespective of the buying activity. The AFPRO was classified as a part of the SPO on the contract scene. The Administrative Contracting Officer was identified as the key AFPRO man through whom the other AFPRO functional division chiefs communicated to the SPO. In general, the Plans and Administration Division chiefs remarked that they were not qualified to make a statement concerning the role of the AFPRO in the weapon system acquisition process.

Functional Support of AFPRO Role. In their support of the AFPRO role, the AFPRO commanders serve in the capacity of an "overseer-integrator" between the "standardized" AFPRO functional areas of quality assurance, production, contract administration, and development engineering. They are responsible for the creation and maintenance of an efficient interface with the SPO and contractor. The commanders support SPO requirements, monitor contractor performance, and comply with HQ AFCMD policies. The AFPRO functional division chiefs examine the contractual clauses that fall under their functional jurisdiction and determine requirements that have been placed upon the contractor. Relationships

are established with the contractor and SPO counterpart functions. Surveillance is maintained over the contractor's performance in accordance with the contract, regulations, policies, procedures, and the AFPRO-SPO Memorandum of Agreement. In a few cases, it was specifically stated that the functional chiefs also establish relationships with the other AFPRO functional divisions in order to systematize AFPRO operations.

Role Support Documentation. The general guiding documentation that AFPRO functional chiefs use to support the SPO are the ASPR and the Air Force Procurement Instructions (AFPI) which serve as the AF directives that implement the ASPR sections. Policy and procedural guidance is obtained from the AF, AFSC, and AFCMD manuals, regulations, and the AFCMD supplements to the guiding and policy documentation for each functional discipline. In addition, AFPRO operating instructions are developed to specifically adjust AFPRO functions to contractor operations and the buying activities' desires in accordance with each AFPRO's capabilities. The buying agencies' contract with a particular contractor was frequently cited as THE basic guiding documentation for each AFPRO functional area. NASA, DOD, and military standards and specifications were quoted as being highly specific procedural guidance for the AFPRO functional areas. In one

case, the AFCMD Organization and Function Chart book was classified as guiding documentation that supplements the above manuals and regulations. The AFPRO-SPO Memorandum of Agreement was occasionally considered as guiding documentation.

Management Functions. The AFPRO management functions performed within the guidelines of the existing documentation were stated to be oriented toward the establishment of rapport with the SPO and contractor counterpart functions. It assures that the contractor is performing in accordance with contractual requirements. At the AFPRO managerial level, objectives and the plans to attain them are established for the AFPRO working levels. Information is defined and collected to determine how well each function is achieving objectives and corrective action is taken, as necessary. Reports of contractor status, progress, and problems are transmitted to the concerned functional areas within the SPO.

Innovations. Basic management was identified by the AFPRO personnel as the answer to the question concerning innovations established because of inadequate or the lack of policy guidance. The need for flexibility and improvisation was stressed because no regulation outlines every detail that occurs or answers every problem in the functional

areas. The documentation generally lets AFPRO personnel establish how to manage as long as the job gets done. Hence, the innovations were considered to be the way each functional chief manages his function. Emphasis was placed on the need of managers to understand basic principles of organization and administration, individual differences in people, and the different approaches needed to get the AFPRO job done. Adjustments based on this understanding should be natural in each situation and allow the proper utilization of managerial resources. AFPRO personnel also indicated that they had participated in the design, test, and evaluation of the AFCMD innovations mentioned earlier in the chapter.

Role Support Problem Areas. The major problem identified by AFPRO personnel that affected their support of the AFPRO role was the lack of knowledge within the USAF concerning the existence, purpose, and proper utilization of the AFPRO. This is reinforced by the buying activity misconception that all AFPROs are the same. It was remarked that there was little appreciation by buying agencies of the fact that all AFPRO/contract/type of business relationships are, in themselves, individually different. Some AFPRO personnel felt that the SPOs did not appreciate the multi-program nature of an AFPRO's operations. To illustrate the point, it was remarked that SPOs assumed the AFPROs capable of

performing all ASPR contract administrative functions. As a generalization, most of the interviewees stated that historically, their manpower authorizations were always low. The method of assigning personnel by use of standards was classified as inadequate. The inadequacy of the communications link between AFPRO and SPO was cited as the reason for the lack of firm planning knowledge of weapon system programs. The lack of cross-fertilization of ideas between AFPROs, the resistance to changing procedures within AFPROs and the inadequate coordination among AFPRO functional areas were stated to be "internal" AFPRO problems. On the subject of reporting, it was remarked that lack of specificity in reporting instructions and excessive report requirements created by higher headquarters resulted in nothing but "busy work" for AFPRO personnel. All of these occurrences were considered to be situations rather than problems. They were reported to resolve themselves as the maturity of the AFPRO-SPO relationship develops.

The System Program Office (SPO) Viewpoint

Role of AFPRO. The System Program Directors and SPO division chiefs considered the role of the AFPRO to be that of an on-the-scene support organization to the SPO predominantly in the areas of contract administration and quality control. SPO personnel recognized the possibility of multi-

program nature of an AFPRO's operations. The AFPRO was described as serving in contractor intelligence and contract administration capacities in order to monitor the contractor's compliance with the contract. It was classified as expediting and facilitating the transmission of contractor inputs and AF requirements between the contractor and the SPO. The AFPRO residency requirement was stated to be based on the monitorship of cost-type contracts. The AFPRO pre-contract award activities were considered to be the evaluation of the contractor's performance capability and financial statements and the review of the contractor's purchasing systems and engineering proposals. It was frequently stated that the SPO's Procuring Contracting Officer (PCO) creates the contractual documents and is the only SPO office that should give the contractor direction. The AFPRO ACO, the PCO counterpart, administers the contract. He advises and gathers information, as requested, in support of the PCO. In summary, the SPO personnel interviewed considered the AFPRO to be the contract administration adjunct to the weapon system acquisition process. They generally remarked that there was a lack of appreciation of the role on the part of many SPO personnel.

Functional Support of AFPRO Role. The reaction of the SPO personnel interviewed concerning the SPO support of the

AFPRO role as stated, was one of general confusion. An attempt was made by the authors to explain, in general terms, the mutual support environment between the AFPRO and SPO. About 20% of SPO personnel could not answer the question and reiterated their statement of the role of the AFPRO in the weapons system acquisition process. Approximately 35% of the SPO interviewees stated that the AFPRO supports the SPO and not vice versa. The remaining 45% were able to state how they support the AFPRO role. The provision of technical advice to the AFPRO, the issuance of delegations of portions of SPO authority to the AFPRO, the dissemination of program realignments to the AFPRO to minimize harmful contract administration program impacts, and the inclusion of AFPRO personnel into the communication/coordination link between the SPO and the contractor were cited as examples of SPO support to AFPROs. The maintenance of the mutual support or rapport, was considered to evolve around the personalities and trust between AFPRO-SPO functional counterparts. It was judged necessary for the particular AFPROs concerned to educate the SPO on its unique capabilities.

Role Support Documentation. The SPO personnel response to the question related to the guiding documentation in support of the AFPRO had a wide degree of variation. The AFSC 375 series of manuals on systems management and the AFPRO-

SPO Memorandum of Agreement were frequently identified as guiding documentation. There was an occasional reference made to ASPR and the AF and AFSC regulations and manuals that were concerned with particular SPO functional disciplines. A number of SPO personnel were not aware of any documentation that supports the AFPRO role.

Management Functions. There were two schools of thought exhibited by SPO personnel concerning the SPO management functions performed within the existing documentations' guidelines. One school advocated the position that the SPO possesses full direction and control over the program from planning-out requirements to implementing the plan. The SPO has the final say on the program, the AFPRO serves only as an organization submitting contractor reports to the SPO for evaluation. In writing the contract, the SPO has no need to consult with the people who administer it. The second school of thought made allowances for the "integration" via communication, coordination, and mutual support, of AFPRO participation in the SPO activities. Free exchange of program information and the discussion of contractor/SPO problems were advocated and indorsed between the SPO and AFPRO. On-site help was indicated as being furnished to the AFPRO by the SPO on an as-needed basis. Service revealed deficiencies were transmitted through the AFPRO to the contractor who rectifies

them under plant representative surveillance. The Memorandum of Agreement is used to give the AFPRO the authority delegation and latitude to work as "part" of the SPO.

Innovations. In general, most of the SPO personnel stated that there were no innovations established within their functions due to inadequate or the lack of policy guidance. They considered their respective functional documentation as adequate. Its generalized nature permitted flexibility of application to the SPO working environment. In a few cases, it was mentioned that the documentation would benefit from an "updating and clarification" exercise. There were, however, two innovations mentioned that have a significant favorable effect on accomplishing the SPO mission. In one SPO, because of the priority of the program, letter contracts were issued for the entire contract amount but funding was limited to long lead-time items. This permitted later funding and negotiation for the remaining effort without the negotiation of new contractual terms. In another SPO, a management information system (MIS) has been designed to give the SPO Director an increased capability to manage his program. It will result in the creation of a computer reporting system between the contractor and the SPO with real time analysis of the contractor planned versus actual contractual accomplishments. Under the terms of the

contract, the contractor is required to use the MIS to manage his contract. The SPO will be able to observe contractor management with the reporting system and will possess the true status of the program at any point in time. Based on the comparison of planned versus actual accomplishment using the MIS, the contractor is required to present alternative "get-well" schemes as necessary. The selection of the best corrective approach is then made. The contractor is to furnish all of the above information to the SPO. The MIS will provide the AFPRO with a contract administration capability that it has never had before. The SPO will be able to conduct "what-if" trade-off analyses in support of the program. SPO personnel estimate that the mechanized MIS will save the SPO at least 16% of the contractor management fee.

Role Support Problem Areas. In answer to problems experienced in their support of the AFPRO role, a number of SPO division chiefs reiterated the fact that the role of the AFPRO is not generally understood by SPO personnel. There was also an identification made to the effect that there is no documentation concerning the role of the SPO in quality assurance. A number of SPO interviewees remarked that the AFPRO was spread "too thin" to be capable of performing its role. In addition, AFPRO engineering was considered to be

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too weak for sufficient and competent challenging of contractor operations. A problem was considered to exist in the timeliness of the reports transmitted from the AFPRO to the SPO. This situation was evaluated as being further complicated because the AFPRO has to report too frequently and to too many organizations. SPO personnel remarked that the AFPRO could not possibly be in on all SPO-contractor telephone conversations. Coordination, if made at all, frequently became an after the fact occurrence. In the area of contractor proposal evaluations by the AFPRO, one interviewee stated that the AFPRO did not submit, to the SPO, an integrated functional evaluation that represented an AFPRO coordinated position. As in the case of the AFPRO personnel, the SPO interviewees also stated that establishment of rapport between AFPRO and SPO reinforced by face-to-face contact by functional counterparts and telephone calls, backed up by letters on contractor problems, all helped to eliminate any problems that exist between the SPO and the AFPRO.

VII. The AFPRO-SPO Relationship

The second area investigated by interviewing AFCMD, AFPRO, and SPO personnel was the AFPRO-SPO relationship. Each interviewee was asked to express his thoughts on each question from a functional viewpoint. The interviews delved into the areas of: the functional nature of the AFPRO-SPO relationship; evaluation of policy guidance documents in delineating the AFPRO-SPO relationship (including Memorandum of Agreement); problem areas; improvement areas; timing of AFPRO participation in the WSAP; AFPRO-SPO personnel interchange; and correlation of AFPRO workload and manpower fluctuations. The questions used in the interviews are listed in Appendix A, Part II.

The AFCMD Viewpoint

Responses of AFCMD headquarters personnel have been consolidated and grouped by the subject of each question.

Functional Nature. The AFCMD headquarters personnel consider the SPO as the executive management agency in the WSAP. The SPO develops requirements, interfaces with higher authorities in funding matters, and carries on top-level relationships with the using organization. The AFCMD provides staff guidance to insure uniformity of actions in the field. Assistance in problem resolution is rendered to aid the

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AFPROs in their direct dealings with the SPOs and the contractors. The headquarters staff oversees AFPRO actions to prepare for new programs assuming that contract awards will occur at particular plants. The staff also coordinates with SPOs to support plant cognizance transfers for major program contract management.

Little direct contact occurs between AFCMD and SPOs. The headquarters personnel emphasized their policy of promoting direct communications between AFPROs and SPOs without headquarters intervention.

Evaluation of Policy Documentation. Delineation of the AFPRO-SPO relationship in official documents and memoranda of agreement was generally judged to be adequate. ASPR 1-406 pertaining to procurement responsibility and authority, AFSCR 80-12, AFSCM 375-5, and AFCMDM 375-1, concerned with development and systems engineering, were specifically mentioned. General references to AFSCR 23-series (organization and mission) and AFSC 375-series regulations and manuals (systems management) were also made. Top management regarded existing documents as adequate and more "paperwork" as unnecessary. Some viewed the memorandum of agreement as a development engineering oriented policy guidance document. Other contract administration functions were said to be incidental mentions in the memorandum of agreement.

Problem Areas. Responses were varied but communications was a commonly cited problem. AFCMD command elements, and the contract administration, comptroller, and the flight operations sections stated that there were no major problems. The difficulties encountered were depicted as situations rather than problems which arise from separation of the procurement and contract administration activities. The roots of such situational problems lie in the lack of communication, understanding, and in personality variances.

Other functional directorates were more specific. It was felt that SPO personnel do not understand the AFPRO working environment or AFPRO capabilities. This was stated to result in a SPO reluctance to delegate tasks and authority. On the other hand, manpower resource limitations would not permit some AFPROs to do all that the SPO desired. Absence of a quality assurance function in the SPOs was not viewed to inhibit AFPRO operations. Quality assurance was regarded to be a unique AFPRO task, but need for increased SPO emphasis was cited.

Improvements. A need for more clarity in defining and specifying tasks was cited for the ASPR. A cohesive philosophy needs to be presented throughout the various regulations to bring responsibilities and functions of procurement together. Training of each individual outside of his own

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specialty was considered necessary in order to learn the basics of interfacing disciplines.

Inclusion of AFPRO manpower requirements in system program documentation (PTDP, PSPP, SPP) was recommended. The incorporation of automatic procedures for manpower space requirements review and allocation was proposed. The manpower requirements package should include options for augmentation of non-Air Force plant representative offices should contract administration be so assigned.

Joint participation by the System Program Director (SPD) and the AFPRO Commander (AFPR) was advocated for high level program reviews. The initiation of such an action was indicated. The SPD and the AFPR will be parties to HQ AFSC program reviews. The HQ AFCMD internal memorandum concerning this subject is contained in Appendix E.

AFPRO Entry to New Programs. The recommendations were unanimous for very early participation of contract administration organizations in new programs. Advanced planning information from all DOD and NASA buying activities was considered essential for HQ AFCMD. Development of total system resources was considered to require a common data base for all potential participating agencies. SAMS0 and AFCMD joint participation was reported in preparation for a Minimum Cost Design/Standard Launch Vehicle study program (See Appendix

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E, letter, HQ SAMSO).

It was remarked that, the AFPRO, with its unique knowledge of contractor capability, should participate in contract definition, subphase B. The extent of effort would be dependent upon the size, complexity, cost, and state of the available technology for the particular system program. It was felt that development engineering personnel assignment to the SPO should be made when definition contracts are awarded. Quality assurance representation in the SPO during contract definition was strongly urged. Inputs from a flight acceptance representative should be made to the production acceptance plans and contract requirements before award of the production contract. Detachment 39, AFCMD, has assisted the SPOs in this area.

Personnel Interchange. One of the AFPRO's prime values was stated to be his knowledge of the contractor's capability. To maintain this unique position, only a limited amount of personnel interchange would be desirable. System programs are finite in duration. The AFPRO is relatively stable and follows a program throughout its life cycle. Cross-training for SPO and AFPRO personnel was considered beneficial in the long run.

AFPRO Workload/Manpower Correlation. The AFCMD was considered to be an organization reactive to a workload it does

not control. The need for long-range planning information from higher headquarters was cited to permit planning of AFCMD resources for support of future programs. Information from AFCMD field units is used to provide visibility of present assets and to aid in forecasting future manpower needs. These resource assets and requirements are grouped into aggregations by program, organization, and by function in the Systems Command Resource Evaluation (SCORE) report. The SCORE report was considered the prime source providing a five-year forecast of resource requirements.

Difficulties in obtaining qualified aircrews led to consolidation of AFPRO flight acceptance functions into AFCMD Detachment 39. Southeast Asia operational demands for aircrew members prevented full manning of AFPRO needs. The consolidation provided the higher priority of a specialized flying organization. However, it was stated that program changes still make it difficult to obtain pilots with particular qualifications in single versus multi-engine and jet versus reciprocating engine powered aircraft.

The AFPRO Viewpoint

Responses by AFPRO personnel were more detailed and show problem variances due to different life cycle phases and program factors.

Functional Nature. The AFPRO-SPO functional relationships were considered to vary depending on the number of SPOs supported and the life cycle phase of each weapon system program. The basic view was that the SPO places the program on contract, assigns the contract to the AFPRO for administration, and the AFPRO supports the SPO in managing the contract. The AFPRO, on an overall basis, furnishes program status and progress information to the SPO.

The execution of functional support in AFPRO assigned tasks begins immediately, but delegated tasks build-up slowly. The AFPRO stated it must continually "sell itself" to create SPO confidence in AFPRO capabilities. The initiative rests with the AFPRO, in this regard, in dealing with any buying activity. Most AFPRO division chiefs stated that they maintain direct formal and informal relations with their SPO counterparts. The most significant gap in functional relationships cited was the lack of a quality assurance counterpart in the SPO. The Plans and Administration Division of the AFPRO stated it had no direct contact with the SPOs. Their function was viewed as internal support to the AFPRO organization.

Evaluation of Policy Documentation. Documentary delineation of the AFPRO-SPO relationship was evaluated over a wide range. Most ACOs regarded the delineation as excel-

lent. One production division chief described it as a big pool with too many broad areas, too few specific areas defined, with an overly complex ASPR, and a poor attempt at delineation in AFSCM 375-5. All of these factors were considered to make it difficult to search for specific information. Two interviewees were not aware of any documentation defining this area. Most regarded the delineation as satisfactory with the exceptions of redundancies among various regulations and between regulations and the memorandum of agreement. The MOA was described as adequate and useful in getting people together to define their relationships during formation or review of the MOA.

Problem Areas. The basic problem presented by the AFPRO was communications. In addition to the usual problem of semantics, SPOs were said to be tardy in providing planning information. Informal communication between the SPO and the contractor needs to be channeled through the AFPRO based on the competence and ability of the AFPRO and the SPO's confidence in the AFPRO. SPO personnel were not taking the time to obtain AFPRO ideas for problem resolution. Proximity of AFPROs and SPOs was considered to be a major factor in improving communications problems. SPO lack of understanding of the AFPRO role contributes to poor communications and a SPO reluctance to delegate responsibility and

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authority.

The SPOs were said to be forgetful of the many programs and buying activities supported by AFPROs. The AFPROs felt that periodic reminders of ASPR requirements and education of the SPO were necessary to re-emphasize the AFPRO role.

In the quality assurance area, it was stated there is no SPO counterpart and the lack of this SPO experience is especially critical during the definition phase. The quality assurance function is completely performed for the SPO by AFPRO personnel. The production management relationship was not viewed to be balanced because of the different organizational levels of the AFPRO production administration division and the SPO production branch. The flight operation units' relations with the SPO test and deployment division were considered to be hampered when the SPO division chief is not a pilot rated in the particular aircraft being acquired.

Improvements. Knowledge and understanding of AFPRO responsibilities and capabilities by HQ AFSC and SPOs were considered a necessity. Most AFPRO personnel felt that the initiative to increase SPO awareness rested with the AFPROs but some stated a need for a regulation requiring SPOs to make maximum use of AFPROs. For new programs, early initial contact to present AFPRO capabilities to the SPO was advo-

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cated. In one case, AFPRO review of the contract in draft form was proposed. For established programs, it was recommended that pre-negotiation discussions be held at the AFPRO since all the data the buyer needs is located there.

Establishment of a quality assurance management function in the SPO for major programs was recommended. For smaller programs, a centralized quality assurance staff in the product division headquarters was advocated. Functional support would be provided as needed depending on the specific nature of each contract, product complexity, and cost factors.

Improvement of communications through a management information system was recommended. Elimination of all interference to direct AFPRO-SPO communication (including HQ AFCMD) was emphasized. Some personnel thought that a delineation of the AFPRO-SPO relationship in the AFR and AFSCM 375-series would be helpful in promoting better understanding of the relationship. Improvement of the technical over business functional imbalance was deemed necessary. The financial and management aspects of all contract management needs more emphasis by all parties.

AFPRO Entry to New Programs. The earliest possible involvement of development engineering was commonly recommended for the definition phase. Knowledge of program technical requirements was considered necessary for effective

proposal evaluation and recommendations to the SPO. The ACO can assist during production contract formulation to tailor terms to a particular contractor's situation. At present, there is little contact with the SPO during the contract definition phase. However, the AFPRO should evaluate bids to point out deficiencies to the SPO based on the AFPRO's familiarity with a contractor's strengths and weaknesses. The necessity to plan, during the contract definition phase, for AFPRO actions to be taken in the development and acquisition phases was emphasized. The AFPRO should participate with the SPO in defining quality assurance requirements for Requests for Proposals. An AFCMD cadre was suggested to accomplish these early actions. The AFCMD cadre would be co-located with the SPO cadre, then transferred to the AFPRO after the development contract is awarded. One interviewee stated that an AFPRO should be involved in the pre-award phase of the program only if it is not involved in the procurement. Otherwise the sensitive nature of competitive negotiation would be endangered leaving the government open to criticism.

Personnel Interchange. Mutual job familiarity by AFPROs and SPOs was a commonly cited need. A planned career progression need was stated for young officers to obtain both AFPRO and SPO experience. Initial experience in a SPO was

preferred but was not considered mandatory. Most AFPRO personnel did not fully indorse exchanges of personnel on extended duty tours. One ACO recommended long term exchanges for all AFPRO supervisory personnel, except ACOs and PCOs. Each of these parties were stated to have two distinct missions - the PCO writes the contract and the ACO administers it. The continuous existence of the AFPRO and the temporary, project nature of a SPO were said to add to this ACO-PCO distinction.

Cross-training of both SPO and AFPRO personnel through temporary duty exchanges was recommended. Attendance by AFPRO personnel at the product divisions' SPO courses was also regarded as helpful to promote understanding of other activities. The AFPRO development engineering personnel were regarded as extensions of the SPO, both through historical precedence and also in their present role, and exchanges were not considered necessary in all cases. It was considered necessary for the SPO Deputy for Test and Deployment to periodically fly the aircraft being acquired in order to obtain operational familiarity.

AFPRO Workload/Manpower Correlation. It was generally stated that the AFPRO, historically, always experiences a lag in personnel assignments. With no control of workload fluctuations, personnel authorizations are perpetually lag-

ging. Manpower space allocations and personnel assignments become especially critical in timing to perform the work at hand. The only functional exception cited was in contract administration (ACO). The work methods are uniform and the ACO is ready to perform within a short time.

The AFPRO manning should parallel the SPO manpower build-up to permit timely and intelligent evaluation of contractor proposals. The present system of authorizing manpower spaces was said to be too rigid and lacking in realistic criteria. Limiting approval of personnel authorization transfers between AFPROs to the MET detachment was regarded as overly restrictive. The responsiveness of the manpower authorization system, to provide needed spaces in time, was presented as poor and overly subject to personal expertise and influence of the requestor. AFPRO manning was said to be measured against a contractor/AFPRO manpower ratio. No differentiation was made between contractor operative tasks and AFPRO tasks in monitoring contractor performance. Separate technological bases were considered necessary to tailor personnel authorizations and assignments in each functional area. The Manned Orbital Laboratory (MOL) program was cited as an exception where realistic manpower requirements were submitted to meet program requirements. No attempt was made to conform strictly to existing

criteria specified in the manpower engineering program and by the AFSC MET detachment. Emphasis by higher headquarters on a major program was presented as a decisive factor in meeting the MOL manpower requirements.

The SPO Viewpoint

SPO personnel responses, grouped by subject area, are summarized below in the final section of this chapter.

Functional Nature. The SPOs reported a wide range of functional relationships from a close, day-to-day contact to very infrequent need for any contact. The program directors viewed the AFPRO-SPO relationship as personal communications in which agreements are reached verbally and are then documented in writing. The nature and frequency of functional counterpart contacts varied. The contacts were considered to depend on the organizational/functional correlation, system program life cycle phase, responsibility and authority delegations, and the specific problems at hand. The program control division chiefs attributed scant AFPRO contacts to the lack of an equivalent function in the AFPRO.

As a program matured, delegation of authority was stated to increase. Some AFPRO activities conducted on behalf of the SPO were cited to be: First Article Configura-

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tion Inspections; engineering changes; and negotiation of contract changes and supplemental agreements. The AFPROs were encouraged to participate in formulation of SPO decisions.

When little design or development actions are being undertaken in space and ballistic missile systems, SPO engineering attention was considered to be focused on production, quality assurance, or follow-on testing activities. Under these circumstances, SPO engineering and test and deployment divisions dealt more with Contract Management Offices.

Evaluation of Policy Documentation. Documentary delineation of the AFPRO-SPO relationship was evaluated as satisfactory by some interviewees, and poor or weak by a few. Very few identified specific documentation. Policy documents were said to be absent or silent with regard to program control division relationships to AFPROs. Responsibilities specified in the production area were said to be overlapping. Those who considered documentation satisfactory cited some exceptions and qualifications. The general nature of AFPRO-SPO relationship documentation was considered adequate for guidance. Specific delineation has increased and improved but more detail was not desired. Specific clarifications and retractions or delegations of tasks were placed in the province of the memorandum of agreement.

Problem Areas. Many of the SPO functional division chiefs reported no problems in relations with AFPROs. Good personal rapport was indicated as established with their AFPRO colleagues. Maturity of the system program in the acquisition phase was a large contributing factor.

Only minor communications problems were cited. Some problems were attributed to differences in personalities and personal perogatives. Complaints reported to the chiefs by some SPO personnel arose from the inconvenience of three-party telephone conversations and the time consumed in the formal channeling of communications through the AFPRO. The need for caution by SPO personnel was emphasized to detect contractor attempts to by-pass the AFPRO or to have the SPO override AFPRO decisions.

Perpetual under-manning and difficulty in recruiting highly qualified, capable personnel by AFPROs were presented as persistent problem areas. Recognition of contract administration services as a professional career field was considered necessary with a complete progression ladder for planned military officer careers.

An organizational problem in the lack of a quality assurance representative in the SPO was presented. The quality assurance staff in the product divisions was not considered to be capable of providing adequate support to the demands

of all SPOs. Heavy reliance had to be placed on the AFPRO and management control by the SPO suffered from the lack of a SPO quality assurance function.

Improvements. A wide range of improvements to the AFPRO-SPO relationship were suggested. All proposals were directly related to improvements in communications. They ranged from a basic need to keep the AFPRO informed and a party to SPO telephone conversations to an elaborate management information system. A directive that would require communications from the SPO to go through the ACO to the contractor was suggested. Increased formality in reporting was thought to be beneficial. A system of formal AFPRO-SPO meetings or program reviews was recommended to preclude new problems, and to clarify objectives. These suggestions to increase formality and the formal means of communication came from personnel assigned to mature programs.

A comprehensive management information system was recommended to link the SPO, AFPRO, and contractor to a common computer data base. Complete facilities would be provided for the SPO and AFPRO to: obtain data and observe program status and progress on cathode ray tubes and other displays; obtain document copies instantaneously; and to program computer simulation techniques for parameter variation-inputs with immediate responses for problem solving and re-program-

ming actions. The AFPRO would serve to validate contractor data transmitted and provide validity assessments directly to the SPO.

AFPRO Entry to New Programs. It was generally agreed that AFPROs need to follow development of a program from the very beginning of its life cycle. They should participate in the creation of contracts. The degree of participation is dependent upon the nature of the program - its sensitivity, security classification, and other factors. AFPRO entry at contract award was considered to be too late in the SPO view. AFPROs, test centers, and other participating organizations should be briefed on the Concept Formulation Package and the Request for Proposal (RFP). AFPRO preparations for timely performance of development engineering support and contract administration make early planning information essential. Acquisition of additional AFPRO manning was cited as dependent upon early planning and action.

The AFPRO was regarded as the best source for validating a contractor's proposal. It was recognized that the AFPROs are familiar with past and recent activities at that plant, and with the contractor's capabilities and techniques. Establishment of the contractor's performance capability was considered one of the most valuable services provided by an AFPRO in the early phases of a program. It was also thought

that AFPRO evaluation of the contractor's management capability would aid the Source Selection Evaluation Board before proposal evaluation is completed. The SPO personnel remarked that the ACO should become familiar with the program during the contract definition phase and participate in selection of the contract type and clauses. AFPRO quality assurance participation in writing the RFP was encouraged. General AFPRO participation in writing RFPs was not advocated by many SPO personnel. Development engineering participation after award of the development contract was considered adequate.

If too many SPO's need assistance concurrently, it was stated that AFPRO manpower would quickly be saturated. An AFCMD cadre was considered useful to assist in RFP and contract formulation. The cadre personnel could be selected from the contending plants. There were some SPO personnel who saw value in AFPRO evaluation of management proposals but not the technical proposals.

Personnel Interchange. SPO personnel presented a wide range of responses to the question of exchanging personnel. Stagnation and a narrow view of activities were cited as hazards to be overcome. A planned career progression for officers in research and development and in SPO positions was described to include an AFPRO duty tour as one assignment

among alternate routes. Broad experience gained by these officers would permit others to specialize. It was remarked that the integrative role of these officers would allow full employment of lesser experienced personnel in all of the functional specialties. Personnel interchanges would help the AFPRO in contract negotiations and the SPO in independent evaluation of contractor facilities. The need for AFPRO experience in the SPO was stressed to aid in RFP and contract preparation and to facilitate administration of the contract.

An exchange of personnel was viewed as beneficial for both military and civilian personnel. The relative immobility of civilian personnel was a problem area to which no clear solution was seen. Program and organizational continuity is indicated as provided by the stable civilian work force and retention of this experience factor was considered important.

Periodic personnel interchanges on a temporary duty basis were widely advocated. It was considered especially important for supervisory personnel, with no experience in either the AFPRO or in the SPO, to gain experience in their counterpart function. There was one appropriate remark made concerning stagnation in a job and limited experience, i.e., "...if you're not careful, (after) a man's been on the job for 10 years, instead of having 10-year's experience, he

may have one-year's experience, ten times.".

Many other SPO personnel, in various functions, did not foresee any value in exchanging AFPRO and SPO personnel. The two organizations perform different and unique tasks which require six-months or more to learn. Benefits to career broadening were seen for a few people, on a selected basis. Those opposed to personnel interchanges preferred improvement of the AFPRO-SPO relationship to promote better understanding and improved working relationships. This would be accomplished through increased personal contacts, joint participation in program reviews, installation of more efficient communications media, and thorough briefings to AFPRO counterparts by individual SPO personnel during plant visits.

AFPRO Workload/Manpower Correlation. Both the SPO and AFPRO situations were recognized in personnel authorization and assignment lagging workload increases or decreases. Where major programs were emphasized, the AFSC MET detachment was reported to aid the SPO as well as the AFPRO. Without higher level emphasis the MET detachment was not considered to be beneficial. The SPO personnel could not formulate an AFPRO manpower package but could estimate functional workload in man-years with AFPRO assistance.

Inclusion of AFPRO manpower requirements in the program documentation (PTDP/PSPP/SPP) was generally considered a

sound proposal. Some doubted the value of doing so since no authorizations would result. The separate documentation systems for system program approval and manpower space approval were regarded as outmoded and inefficient. Other organizations such as the test centers, laboratories, and logistics support organizations, were placed in the same situation. HQ AFCMD participation to integrate activities among AFPROs was considered to be essential since AFPRO workloads are commensurate with contractor activities and system programs have finite lives.

Some programs were stated to inject additional complications into AFPRO manpower requirements. Space system hardware procurement does not have the long production runs of the aircraft or military missile system acquisition programs. A job-shop environment involving procurement of only a few major items is encountered. Very long lead-times are required for a few space vehicles and each one is tailored to unique mission requirements. Trade-offs between volume, complexity, quality, and cost were stated to increase AFPRO manpower quality requirements while demanding fewer people.

The preceding two chapters presented the viewpoints of the AFCMD, and selected AFPRO and SPO organizations concerning the Role of the AFPRO and the AFPRO-SPO Relationship in

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the Weapon System Acquisition Process. The AFPRO-SPO Memorandum of Agreement is the subject of the next chapter.

VIII. The AFPRO-SPO
Memorandum of Agreement

The final subject area which the questionnaire was directed toward was the AFPRO-SPO Memorandum of Agreement (MOA). The questions that were asked of the AFCMD, AFPRO, and SPO personnel on this topic are presented in Appendix A, Part III.

Before presenting the viewpoints discussing the MOA, an explanation will be presented about the rationale behind two of the questions. AFCMD, AFPRO, and SPO personnel were queried concerning the types of documentation that are published for policy guidance and the documentation actually utilized in preparing and implementing the MOA. The authors wanted to obtain operative identifications of distinctions between the basis and actually utilized documentation. If there were such distinctions, the two questions were intended to determine the underlying causes. The objective was to obtain operative classification of whether this situation was normal in execution of functional duties or whether the use of substitute documentation was caused by the lack of or inadequate basis documentation.

The AFCMD Viewpoint

Purpose of the MOA. The AFCMD personnel interviewed

were equally divided in their statements concerning the MOA. On one side, the MOA's purpose was the establishment of a defined, clear understanding (also referred to as a contract, a frame of reference, and a communication process) as to what both the AFPRO and SPO would do and what was expected of each in the management of major weapon system programs. It serves to clarify the normal AFPRO-SPO functions and to add or delete these functions as necessary. The other AFCMD view presented the MOA as a document that establishes relations between the AFPRO and the SPO only in those areas that were peculiar or "exceptional" to a certain program. Existing documentation was considered to be adequate in its coverage of the AFPRO and SPO functions. It would define the "over and above" normal functions that the SPO expected or did not expect the AFPRO to perform.

Role in MOA Preparation. In response to the question concerning the role served in the preparation of the MOA, HQ AFCMD directorate personnel considered their role to be one of only policy guidance, advice, and assistance in the resolution of specific problems. It was remarked that the preparation of the agreement was an operating detachment level responsibility. The HQ functional directorates serve as overseers and interfacers with the policy arms of the product divisions in relation to the problems and support

needs concerning the exactness, continuance, and revision of the document.

Role in MOA Implementation. The HQ AFCMD interviewees stated that they basically served in the same capacity during both the preparation and the implementation of the memorandum. The responses that were related to implementation of the MOA concerned staff surveillance of AFPRO performance and staff efforts to allocate the proper resources to the AFPROs to make their MOA implementation feasible.

The MOA Guiding Documentation. AFSC and AFCMD manuals and regulations were identified by HQ AFCMD personnel to be the basis and utilized documentation for preparation and implementation of the MOA. The AFPRO personnel were stated to be directly involved in the use of these documents to prepare and implement the agreement. AFSCR 80-12 (See Chap. 4 p. 65) and AFSCR 74-6 (See Chap. 4 p. 64) were specifically identified as containing the guidelines for the content and format of the memoranda of agreement concerning development engineering and quality assurance respectively. It was stated that existing MOAs frequently are used to serve as the basis for new agreements. In this case, they are updated and tailored to meet the needs of specific programs. The production directorate stated that there was no specific documentation related to the establishment of a memorandum

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for the production function of an AFPRO. In relation to the quality assurance functions in an AFPRO, it was stated that a Quality Assurance Plan rather than a MOA was prepared and implemented to support this AFPRO-SPO functional relationship. No differentiation was made between basis and utilized documentation for MOA preparation and implementation.

MOA Problem Areas. HQ AFCMD personnel stated that the basic problem in the preparation of the MOA was the provision of the time and the availability of the right AFPRO personnel to participate in the preparation of the memorandum. With regard to the implementation of the MOA, the most frequent problem cited was limited manpower to do all that the SPO wants done. A closely allied problem was stated as the failure of outside users and reviewing organizations to see that it was impossible for an AFPRO to fulfill all the contract administration functions listed in the ASPR and in the AF and AFSC implementing documentation. A number of AFCMD personnel remarked that the SPO was not utilizing the full technical capability of the AFPROs. A problem was considered to exist in the timing of a fully executed MOA so that the AFPRO personnel can start performing their functions. In a multi-program AFPRO, it was stated that a wide degree of variation exists in the services to be performed within each AFPRO functional area for each of the SPOs sup-

ported by that AFPRO. Consequently, there is no standardization in the mutually agreed upon AFPRO services within the MOAs. The result was classified to be the excessively thin spreading of AFPRO services to the SPOs supported and the jeopardization of the required support performance to any SPO. In the quality assurance area, it was pointed out that the present policies require a QA plan on all systems rather than on an as-needed basis. This was considered to be an excessive overuse of the QA plan.

MOA Policy Document Improvements. In order to improve the current policies for the preparation and implementation of the MOA, it was suggested by HQ AFCMD personnel that a central MOA policy document be prepared at AFSC level. It would define the MOA and its elements. By a clarification of the normal AFPRO and SPO functions, the MOA could be used for the "exceptional" functions. It was stated that MOA drafts should be prepared concurrently by the AFPRO and SPO which would both serve as the basis for a negotiated composite document. AFCMD personnel also remarked that the structure and content of the MOA should reflect and be adaptable to the changing contract administration environment.

The AFPRO Viewpoint

Purpose of MOA. There were three divergent purposes of the MOA cited by AFPRO personnel. The first two to be presented were of equal frequency while the third can be classified as a "minority position". The first frequently cited purpose was to fully and clearly delineate the relationships between the AFPRO and SPO and to clarify the general provisions of ASPR. The MOA should establish, in a manner similar to a contract, the support and performance requirements expected of the AFPRO and SPO for contract administration and the areas of mutual responsibility. It would prevent any misunderstanding as to "who was going to do what" on a particular program. The MOA was stated to be a mechanism that limits the type of AFPRO support functions provided to the SPO, determines the requisite AFPRO capability, delineates the SPO data requirements that the AFPRO supports, and finally selects the common and special AFPRO functions to support the SPO. It presents a delegation of SPO authority to the AFPRO to perform certain tasks for the SPO and clearly defines the limits of AFPRO responsibility. The second frequently stated purpose of the MOA was the enumeration, on a local specific basis, of those functions not covered in ASPR requirements, which the AFPRO will perform and/or those functions contained in ASPR which the AFPRO will not

perform on behalf of the SPO. The MOA was considered here to serve as clarifying documentation for the contract administration activities that deviated from the basic guiding documentation. The "minority position" purpose of the memorandum was viewed as a geographical "crutch" spanning the communications gap between the SPO and AFPRO functions. The benefits of its purpose were classified as highly suspect or worthless.

Role in the MOA Preparation. There was a wide range of answers concerning the role of the AFPRO personnel in the preparation of the MOA. Some interviewees stated that the AFPRO prepares the MOA in accordance with its functional capabilities and transmits it forward to the SPO for evaluation and approval. Others said that the SPO prepares the document in accordance with its needs and that the AFPRO evaluates it in accordance with its capabilities. Different functional offices within the AFPROs visited were identified as being the integrative and coordinative agency for MOA formulation, e.g., the contract administration, quality assurance, and development engineering divisions. Functional correlation with the SPO counterparts was emphasized as necessary for MOA negotiation. Some AFPRO personnel indicated that they participated in annual MOA revisions with their SPO counterparts. Two types of agreements were identified

as being prepared; an MOA that concerns itself with only one functional discipline in the AFPRO-SPO relationship, or an MOA that integrates into a "systematized" document, the mutually agreed-to relationships of all the AFPRO-SPO functional disciplines.

Role in MOA Implementation. The AFPRO commanders and division chiefs interviewed all agreed, that once the MOA is approved and accepted by the SPO and AFPRO functional counterparts, the role of the AFPRO functions in implementing the MOA is to "get the job done". The MOA established a requirement on the AFPRO and it was considered to be the AFPRO's responsibility to implement the requirement. It was also mentioned that the AFPRO should immediately inform the SPO when it is unable to fulfill the terms of the agreement. The AFPRO staff was identified as responsible for the updating and coordination or revised MOAs with the SPO.

The MOA Guiding Documentation. Along with the AFSC and AFCMD manuals and regulations identified by HQ AFCMD personnel, the AFPRO interviewees stated that the ASPR clauses related to specific AFPRO functional areas plus the SPO contract itself were also used as the basis and utilized documentation for the MOA's preparation and implementation. No differentiation was made between the basis and utilized documentation.

MOA Problem Areas. The basic problem cited by AFPRO personnel in the preparation of the MOA was the establishment of agreement between the SPO and AFPRO concerning the extent of its content. This was precipitated by the lack of clarity concerning the purpose of the MOA. With regard to MOA implementation, it was frequently stated that it is erroneous for any buying agency or outside reviewing organization to assume that the AFPRO can perform all the contract administration functions enumerated in the existing documentation. Manpower restrictions prohibit their accomplishment. It was remarked that the SPO frequently desires the AFPRO to do more than it has the manpower resources for performing. In areas where the AFPRO does possess a performance capability, it was stated that occasionally the SPO over protects its functional perogatives and inhibits AFPRO performance.

MOA Policy Document Improvement. In response to the question concerning methods to improve existing MOA preparation and implementation policies, AFPRO personnel gave a wide variety of answers. Some interviewees considered the policies to be adequate, the operatives should just follow the rules. Others stated that there were no documents available to guide the writing of the document. The negotiation of the agreement was considered to be subjective in nature and dependent upon the "force of personality" of the negotiators. The

majority of the AFPRO interviewees stated that the scattered references to the MOA in the existing documentation should be consolidated into one policy document for the MOA. The purpose of the consolidated document would indicate the purpose of the MOA, specify when an agreement was needed, and would delineate the subject areas for inclusion. It was felt that the above suggestion would formalize and make explicit the present directives on MOAs and their formulation. In the preparation of the MOA, it was proposed that procedural standards should be provided as a basis to consider whether the planned MOA is redundant, worth putting on paper, and whether it would adversely affect the AFPRO and/or SPO operations. With regard to implementation, it was suggested that the MOA additionally be concerned with the mechanics of exactly how the tasks are to be performed by the AFPRO in support of the SPO.

The SPO Viewpoint

Purpose of MOA. The SPO personnel interviewed stated basically the same three divergent purposes of the MOA as did the AFPRO. However, they were presented with equal frequency. The first of these purposes cited was that the MOA was an expression of agreement and clarification between the AFPRO and the SPO delineating the limits of their responsi-

bilities with regard to the management of the program contract. It serves as a charter of understanding between the organization's functions specifying the framework of their operations in order to give a detailed position of the intent and degree of expected AFPRO participation. The second purpose of the MOA that was stated by SPO interviewees concerned itself with the taking-up of the slack left by the existing policy documents. This supplementation was considered necessary in order to particularize the agreement to the specific AFPRO-SPO program day-to-day relationships. By emphasizing the AFPRO functions to be performed that were not specifically mentioned in the regulations, the interviewees felt that more flexibility in functional operations would be given to the SPO and AFPRO personnel. The third expression of the purpose of the MOA concerned itself more with the creation of communication, coordination and daily rapport in AFPRO-SPO relationships than it did with the actual memorandum's purpose. It was stated that the actual content of the memorandum is immaterial to the establishment of the proper AFPRO-SPO working relationship.

Role in MOA Preparation. It was unanimously agreed by all SPO interviewees that the SPO was responsible for the writing of the MOA. It was then sent to the AFPRO for coordination. Within one of the SPOs interviewed, all of the

functional chiefs indicated that they were responsible for the coordination and integration of the entire document.

Role in MOA Implementation. Once the MOA has been mutually agreed upon by the SPO and AFPRO, the SPO personnel generally agreed that their role in its implementation was the assurance that the functions delegated to the AFPRO are performed to the satisfaction of the SPO. In addition, the SPO must perform the functions defined and assigned by the MOA to the SPO for accomplishment. One divergent SPO implementation role was cited as the utilization of the MOA to identify organizational responsibility when problem areas arise.

The MOA Guiding Documentation. In response to the questions concerning the basis and actually utilized documentation for the preparation and implementation of the MOA, most of the SPO personnel interviewed stated that they were "fairly familiar" with the pertinent ASPR, AF, and AFSC documentation. Specific identification of documentation was made in the engineering and configuration management functions of a few of the SPOs interviewed. Past MOAs plus the SPO system package program were also identified as basis documentation. There was no distinction made between the basis and the utilized documentation.

MOA Problem Areas. The problem areas cited by the SPO personnel concerning the preparation of the MOA centered around the lack of clarity concerning who is responsible for and has ultimate authority over the agreement. A follow-up problem was stated to be the coordination of the MOA within the SPO and the achievement of mutual agreement between the SPO and AFPRO concerning its contents. In connection with the MOA's implementation, it was remarked that AFPRO quality assurance personnel tend to make their own interpretations of the contractual clauses under their jurisdiction. A further implementation problem was identified as being the tendency, with long tenure relationship, to lose sight of AFPRO-SPO functions that are contained in the MOA.

MOA Policy Document Improvement. A number of SPO personnel considered, as adequate, the current policies behind the preparation and implementation of the MOA. One of the frequently stated SPO improvements was the establishment of an office of primary responsibility (i.e., the SPO) and a focal point office therein that would dictate the MOA terms. The agreement would become a directive with reference to AFPRO activities. The need for a periodic review and renewal of the MOA was proposed in order to update its terms. It would serve to expose the actual AFPRO-SPO understandings

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and working relationships and facilitate the determination of their accord with contract administration policy.

IX. Findings

In the preceding three chapters, a presentation was made of the AFCMD, AFPRO, and SPO directorate or division chief level viewpoints concerning the role of the AFPRO, the AFPRO-SPO relationship, and the AFPRO-SPO Memorandum of Agreement. Chapter Four traces the documentary bases that were found by the authors to support the AFPRO-SPO relationship. It is the purpose of this chapter to consolidate and correlate operative viewpoints and to compare their views with the existing documentation.

The Role of the AFPRO

A synopsis of the AFCMD, AFPRO, and SPO viewpoints, and existing documentation concerning the role of the AFPRO is presented in this section. Commonality and differences in viewpoints and the correlation of these views with the basis documentation are included.

Role of AFPRO. Although there is some evidence of a divergence concerning the role of the AFPRO in the weapon system acquisition process, there was general agreement among the interviewees that the role of the AFPRO is that of an in-plant supporting extension of the buying activity to assure that the contractor performs in accordance with the contract. There was frequent identification made by the

interviewees that most SPO personnel do not understand or appreciate the role of the AFPRO in contract administration.

Functional Support of the AFPRO Role. AFCMD personnel stated their support of the AFPRO role was to provide policy guidance, direction, and staff management assistance to the AFPRO operatives. The AFPRO interviewees reported their AFPRO supportive role to be surveillance over the contractor's performance to assure compliance with the contract. AFPRO operations are governed by AF, AFSC, and AFCMD regulations, policies, procedures, and the AFPRO-SPO Memorandum of Agreement. The SPO personnel were divided on the question of supporting the AFPRO role. Approximately 55% of the interviewees could not understand "SPO support of the AFPRO role" or they stated that the AFPRO supported the SPO and not vice versa. Only 45% of the SPO personnel could cite instances of their support of the AFPRO role.

Role Support Documentation. In response to the question concerning guiding documentation in support of the AFPRO role, the AFCMD and AFPRO personnel generally identified the continuum of documents from ASPR and DOD through AF and AFSC to AFCMD documents and the AFPRO-SPO Memorandum of Agreement. The SPO personnel frequently identified the AFSC 375 series of manuals on systems management and the MOA. Occasional reference was made to the ASPR and the AF and AFSC regulations

and manuals. A number of SPO personnel were not aware of any documentation that supports the AFPRO role.

The authors conducted a study of the existing documentation concerning the AFPRO-SPO relationship. As is indicated in Chapter 4, the documentation at AF and DOD levels was predominantly concerned with the identification of general contract administration functions and the policies and procedures for the DOD plant cognizance program. There were scattered references to the role of the various AFPRO functions within the AFSC manuals and regulations. The AFCMD documentation gave a detailed delineation of AFPRO functional procedures to be followed to support the SPO and to perform tasks unique to AFPRO operations.

Management Functions. The management functions performed within the guidelines of the existing documentation in support of the AFPRO role were cited by the AFCMD personnel to be the provision of policy direction, staff assistance, and performance evaluation of the AFPRO detachments. The AFPRO personnel predominantly considered its management functions to be the establishment of rapport, objectives, and control channels with the SPO and contractor counterparts to assure contractor compliance with contractual requirements. SPO interviewees were equally divided in their response to the management functions which they perform in

support of the AFPRO role. Some SPO personnel stated they possessed full direction and control over all phases of their programs and that the AFPRO was only an organization that transmitted contractor reports to the SPO. The remainder advocated integration of AFPRO participation in SPO activities via communication, coordination, and mutual support.

Innovations. The responses, given to the question concerning management innovations established because of a lack of or inadequate guiding documentation, varied widely in the organizations interviewed. HQ AFCMD personnel remarked that it was their job to innovate and expand higher headquarters' directives for field detachment use. The AFPRO interviewees identified basic management as the answer to the question. The need for flexibility and improvisation was stressed because no regulation outlines every detail that occurs or answers every problem in the functional areas. The documentation was generally considered to allow the AFPRO personnel to establish how to manage as long as "the job gets done". The SPO personnel, in general, classified the documentation as adequate, so no innovations were established. The generalized nature of the documentation was considered to provide the flexibility of operations required in the SPO working environment. In a few cases,

it was mentioned that the documentation would benefit from an updating and clarification exercise.

Role Support Problems. AFCMD, AFPRO, and SPO personnel gave an interrelated and, frequently, closely correlated array of replies when queried concerning problem areas experienced in support of the AFPRO role. They are summarized below.

Role of AFPRO - AFCMD and SPO personnel generally stated that SPO personnel do not understand the role of the AFPRO in the weapon system acquisition process. The AFPRO interviewees extended this lack of understanding to the USAF and also included a lack of knowledge concerning the existence, proper utilization and individual variations of the AFPROs.

Manpower - AFCMD personnel stated that their division was undermanned and that manpower assignments were not properly time-sequenced into the AFPROs. The AFPRO interviewees remarked that AFPRO manpower was always low. They classified, as inadequate, the method of assigning personnel by use of standards. The SPO personnel stated that the AFPRO was "spread too thin" to be capable of performing its role. They also considered AFPRO engineering as too weak to adequately challenge contractor operations.

Reporting - The AFCMD interviewees considered the AFPRO reports to be weak insofar as standardization and adequacy of contents is concerned. The AFPRO personnel stated that they had too many and too frequent reporting requirements. The SPO interviewees reiterated the AFPRO and AFCMD comments and added that there was a problem in the timeliness of AFPRO reports to the SPO.

Quality Assurance - HQ AFCMD personnel indicated that the SPOs of the AFSC product divisions do not have very well defined quality assurance functions. SPO interviewees stated that there is no documentation concerning the role of the SPO in quality assurance. As was stated earlier in Chapter V on page 99, 46.6% of the total AFCMD manpower in the field serves in the functional area of quality assurance.

Situations Rather Than Problems - The AFCMD, AFPRO, and SPO personnel interviewed agreed that the geographical separation of the AFPROs and the SPOs, and the unique relationship of each AFPRO with its contractor, created situations rather than problems. These situations, which were considered to be normal, concerned the areas of communication, coordination, planning, and understanding of responsibilities. The environment should be flexible enough to deal with these normal situations and peculiarities

which may arise. It was also pointed out that the situations usually resolve themselves as the AFPRO-SPO relationship develops and matures. The establishment of AFPRO-SPO rapport, reinforced by face-to-face contact by functional counterparts and follow-up letters to telephone conversations, all helped to bring about this resolution.

The AFPRO-SPO Relationship

The views of HQ AFCMD, AFPRO, and SPO personnel coincided in the major areas of the AFPRO-SPO relationship investigated during the interviews. Some differences in specific areas were uncovered. A correlation of views is provided in this section of the findings and is integrated with the results of the policy documentation research presented in Chapter IV.

The Functional Nature. HQ AFCMD exercises general supervision of AFPRO relationships with System Program Offices. Direct contact between HQ AFCMD and SPOs is infrequent. These contacts are limited to headquarters support in resolving problems and to such activities as plant cognizance transfers.

Both the AFPRO and SPO personnel recognized their varying relationship depending upon the system life cycle phase, organizational/functional counterpart correlation, and the

maturity of the program. Both organizations stipulated that delegation of SPO responsibility and authority to the AFPRO increased gradually as the system program matured. Close personnel contacts with functional counterparts were cited.

The AFPRO added that the functional relationship also depends on the number of SPOs supported. The initiative in establishing close contact with a SPO always rests with AFPROs and gaining SPO confidence in AFPRO capabilities was regarded, by AFPROs, as an AFPRO responsibility. The lack of a SPO quality assurance counterpart was identified as a significant gap in organizational/functional relations.

SPO personnel saw additional variations in the relationship caused by the specific problems at hand. The nature and significance of the problems and the functional disciplines involved varied with time and brought different sets of people together. The program control divisions attributed infrequent contacts to the lack of a similar function in the AFPRO.

The policy and procedural guidance documents recognized the continuum of tasks spanning the entire range of AFPRO and SPO activities. ASPR 1-406 is the key directive document in specifying the AFPRO-SPO relationship. The SPO manual, AFSCM 375-3, Chapter 8, "Procurement, Contract Manage-

ment, and Production" provides a brief description of many AFPRO functions. This description is not readily discernible because of the titles used for identification. References provided to other functional directives are out of date. The many functionally oriented publications describe an operating system for the functional area and ascribe individual roles to the SPO and the AFPRO. AFSCR 74-6 on the quality assurance program requires AFSC product divisions to establish contract requirements and approve AFPRO quality assurance implementation plans. However, resources necessary to perform these activities are not provided in the SPO organizational system.

Evaluation of Policy Documentation. There was general agreement by all parties that the existing documentation collectively described the AFPRO-SPO relationship adequately. More documentation is not considered necessary and is not desired. Most of the specific documents mentioned were in the engineering functional area. The AFPRO and SPO personnel were in consonance on the usefulness of the memorandum of agreement in helping to define their relationships.

No single document was found that specified the roles, functions, and the relationship of AFPROs and SPOs. The listing of documents in Attachment 2 to AFSCM 375-3 was the most complete reference found. Although DOD Directives and

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Instructions are not distributed to operative organizations, it was found that pertinent DOD publications are attached to the implementing HQ USAF directives.

Problem Areas. The problem most frequently identified was poor communication. AFCMD and AFPRO personnel attributed the communications problem to a lack of understanding by the SPO of the multi-program environment of AFPRO operations. The AFCMD and AFPRO find SPOs reluctant to delegate tasks to AFPROs because of poor communications resulting from a lack of understanding of the AFPRO role. The SPOs related communications problems to personality differences and to the inconvenience and time consuming nature of a three-party communication process. Other factors such as, the organizational division of procurement and contract administration tasks, and the relative geographical separation of organizations, detract from and add to the quality of communications. Both the AFCMD and the SPOs identified the AFPRO manpower resource shortages and its impact in limiting delegations of responsibility and authority.

The primary organizational problem was identified as the absence of a quality assurance counterpart in the SPO. The AFCMD did not consider this an inhibiting problem, but the AFPRO and SPO viewed it in a more serious light. The AFPRO considered this a critical problem during formulation

of requirements in the contract definition phase. The SPO regarded AFPRO quality assurance a weak area in retaining management control. The AFPRO and SPO views support the policy in AFSCR 74-6 which requires the procuring activity to define contract requirements and to manage the quality assurance program. However, the SPOs stated that the product division staff could not possibly support the demands of all of the SPOs.

Improvements. All interviewees were consistent in commonly recommending improvement of communications. The means for improvement varied widely among the three basic organizational components. Formal joint program reviews and improved management information systems were recommended. Improvements in documentation to clarify and to present a cohesive philosophy of AFPRO-SPO relationships was a commonly identified need.

A particular need to provide functional cross-training of individuals in interfacing specialties and also to include AFPRO manpower requirements in system program documentation was stated by the AFCMD. The AFPRO personnel again stated the need for a quality assurance management function in the major program SPOs. In addition, an improved balance of functional disciplines was recommended by the AFPRO. To balance the intense attention paid to the technical functions,

emphasis on the management and financial aspects of contract management needs to be increased.

AFPRO Entry to New Programs. The interviewees unanimously stressed the need for AFPRO participation at the beginning of a system program. The AFCMD (along with AFSC product divisions) needs to assimilate advanced planning information to prepare total system resource requirements for future programs. Joint AFPRO-SPO participation in the contract definition phase was recommended to; evaluate proposals, formulate contract requirements, and include ACO and quality assurance inputs. The unique AFPRO knowledge concerning the competing contractors' performance capabilities was considered valuable in validating the contractor proposals. Co-location of AFCMD or selected AFPRO personnel with the SPO cadre was also recommended.

AFCMD participation in a SAMSO study for future space launch vehicle requirements was cited. AFCMD and SPO personnel indicated the effect that various program factors would have on the extent of AFPRO inputs to new programs. The AFCMD and SPO views on the timing of development engineering participation differed. AFCMD recommended assignment of AFPRO development engineers to the SPO during contract definition. The SPO considered development engineering participation after award of the development contract as adequate.

SPO personnel recognized the limited manpower available from AFPROs to participate in multiple program and contract definition activities.

The emphasis placed on systems management documents focuses contract administration actions on the post-award phases of the WSAP. Description of AFPRO activities in the pre-award phases primarily concerns contract change and amendment actions. One mention is made in AFSCM 375-4, of AFPRO input to contract pricing in the early phases of the program life cycle.

Personnel Interchange. It was mutually agreed that the AFPRO has a continuous existence and a work force that follows a system program throughout its life cycle. Relative work force stability, and retention of functional specialty experiences at a particular plant were considered important by the three organizations. Cross-training of SPO and AFPRO personnel on a temporary duty exchange was considered beneficial.

Both the AFPROs and the SPOs considered experience in both organizations to be an asset. The SPO personnel stressed broad experience for officers to provide an integrative influence within and among functional specialties. Need for a planned career progression of officers in the weapon system acquisition specialties was stressed.

The AFCMD and AFPRO personnel favored only a limited, selective exchange of personnel, while the SPOs considered a broader exchange of both officers and civilians to be a benefit to program management. Some SPO personnel agreed with the AFCMD and AFPRO viewpoints in doubting the value of a personnel interchange. They preferred improvement and clarification of the AFPRO-SPO relationship, formal training, and improved communications equipment and processes.

AFPRO Workload/Manpower Correlation. The time lag in authorizing and assigning additional personnel to the AFPRO commensurate with workload build-up and work force reduction during workload phase-down is commonly recognized. The need for long-range planning information and advanced preparation by HQ AFCMD was stressed. The AFCMD maintains a manpower resource forecast on the same five year time frame as the DOD Planning-Programming-Budgeting System and the AF Force and Financial Plan.

The AFPRO and the SPO identified deficiencies in the present manpower authorization system. Separation of the manpower system from the program approval system creates additional problems. System program documentation has not identified AFPRO manpower resource requirements along with the same type of requirements for other participating organizations. The AFCMD recommended inclusion of AFPRO manpower

requirements in the PTDP/PSPP/SPP documents. The SPO also made this recommendation but doubted its value since no approval would result. AFSC Supplement 1 to AFR 375-4 already requires such resource identification. The AFPROs consider the manpower authorization system to be too slow and inflexible to meet changing program requirements. The use of a contractor/AFPRO aggregate manpower ratio as a control parameter was considered unrealistic. Separate technological bases, tailored to functional and program requirements, were considered necessary.

The impact of product quantity and quality differences on the quality and quantity of AFPRO personnel was cited by a SPO. Very low production hardware quantities and extremely high quality requirements of space boosters demand commensurate AFPRO personnel qualifications and quantities.

The AFPRO-SPO Memorandum of Agreement

The following condensation presents the AFCMD, AFPRO, and SPO viewpoints concerning the Memorandum of Agreement (MOA). The relevant policy documentation is also discussed.

Purpose of MOA. AFCMD, AFPRO, and SPO personnel identified two distinct purposes for the MOA. The memorandum was considered to be a document for the establishment of a defined, clear understanding as to what functions both the

AFPRO and SPO would perform and what was expected of each in the management of a major weapon system program. It was additionally remarked that the MOA established relations between the AFPRO and SPO for only those functions that were peculiar or exceptional to a certain program, and were not contained in the ASPR. The AFPRO and SPO personnel cited a third and less frequently stated purpose for the MOA. The document was classified as being a communication and coordination "crutch" for the AFPRO-SPO functional counterparts. The contents of the agreement were labeled as immaterial, highly suspect, or worthless in the creation of AFPRO-SPO working relationships.

Role in MOA Preparation. The HQ AFCMD personnel stated that their role in the preparation of the MOA was only one of policy guidance, advice, and assistance in the resolution of specific problems. Preparation of the document was considered to be an operating detachment level responsibility. AFPRO interviewees gave a wide variety of responses for this subject. Some identified the SPO, and others the AFPRO, as the preparing agency for the MOA. Inter-organizational coordination was stressed in both cases. The contract administration, quality assurance, and development engineering divisions of the AFPRO were cited as the integrative and coordinative agencies for MOA formulation. Participa-

tion in MOA updating and revising meetings with the SPO was also identified. The existence of two types of MOAs was indicated: a MOA concerning only one functional discipline; and a systematized MOA that integrates the relationships of all the affected AFPRO-SPO functional disciplines. SPO personnel unanimously agreed that the SPO was responsible for the writing of the MOA. The AFPRO's role was considered to be solely one of coordination. There was no agreement concerning the office within the SPO that has responsibility for preparation and integration of the MOA.

Role in MOA Implementation. In addition to the role stated for MOA preparation, AFCMD personnel cited their MOA implementation role to be one of staff surveillance of AFPRO performance and allocation of the proper resources to the AFPRO to make the document's implementation possible. The AFPRO interviewees stated their role in the implementation of the MOA is simply "to get the job done". The AFPROs considered the MOA to be a statement of requirements for contract administration tasks. It was deemed the AFPRO's responsibility to fulfill those requirements. A MOA updating the revising role was also identified. In general, the SPO personnel considered their MOA implementation role to be the assurance that the functions delegated to the AFPRO were

performed to the satisfaction of the SPO.

MOA Policy Documentation. AFSC and AFCMD manuals and regulations were stated, by HQ AFCMD personnel, to be the basis and the utilized documentation for the AFPRO preparation and implementation of the MOA. AFSCR 80-12 and AFSCR 74-6 were specifically identified as containing guidelines for the format and content of the MOA concerning development engineering and quality assurance respectively. In addition to the documents stated by HQ AFCMD personnel to be basis and utilized documentation, the AFPRO interviewees further identified ASPR clauses related to specific AFPRO functional areas plus the SPO contract itself. SPO personnel remarked that they were fairly familiar with the basis and utilized documentation. Specific documentation identification was made by the SPO engineering and configuration management personnel interviewed. The Systems Package Program (SPP) was indicated to be basis documentation. In general, AFCMD and SPO personnel stated that old MOAs were used as a guide in the preparation of new agreements. None of the AFCMD, AFPRO, and SPO personnel interviewed made any distinction between basis and utilized documentation.

In the study of the existing documentation behind the AFPRO-SPO relationship, the authors found some documents

that referred to the MOA. ASPR 1-406 (Chap. 4, P. 62) stated that a MOA was not necessary for the normally assigned contract administration tasks and that special contract administration instructions should accompany a contract. AFSCR 375-1 (Chap. 4, p. 66) requires appropriate use of the MOA between SPOs and AFSC divisions participating in the acquisition of weapon systems. AFSCR 74-6 (Chap. 4, p. 64) establishes SPO responsibility in participating with the AFPRO in the preparation of a Quality Assurance Plan and its approval. AFSCR 80-12 (Chap. 4, p. 65) states that the purpose of the MOA is to clarify normal engineering support functions and to delete and/or delegate additional functions. If clarification or change is not necessary, the MOA is not required. The regulation further identifies the MOA initiator to be either the AFPRO or the SPO. AFSCR 23-43 (Chap. 4, p. 64) mentions SPO collaboration with the AFPRO in development engineering and quality assurance in accordance with AFSCR 74-6 and AFSCR 80-12. Both of these documents contain a format for the MOA. AFSCM 375-5 (Chap. 4, p. 69) concerning systems program management procedures reiterates AFSCR 74-6 and AFSCR 80-12 concerning the MOA and surveillance of contractor activities.

MOA Problem Areas. The main problem that the AFCMD interviewees saw in the preparation of the MOA was the pro-

vision of adequate time and manpower to participate in the writing process. With regard to implementation, the key problem was identified as limited manpower to accomplish the memorandum tasks. AFCMD personnel stated that there was a general lack of understanding concerning the fact that any given AFPRO cannot perform all of the ASPR contract administration functions. In addition, it was remarked that the SPOs do not fully utilize the existing AFPRO functional capabilities. Multi-program AFPROs were identified as having the problem of not being able to standardize the services they provide, via the MOA, to their user SPOs. As a result, the AFPRO work force was "spread too thin".

The basic problem identified by AFPRO personnel concerning the preparation of the MOA was the difficulty experienced in establishing an agreement because of the lack of clarity concerning the purpose of the MOA. Basically, AFPRO interviewees stated the same MOA implementation problem areas that were presented by the AFCMD personnel.

The lack of clarity concerning the office of primary responsibility and authority over the MOA was considered a problem by SPO personnel. Intra-SPO and intra-AFPRO agreement on the contents of the MOA was also cited as a problem. The MOA implementation problem areas presented were the interpretation of contractual clauses by AFPRO quality assur-

ance personnel, and the tendency, in a long tenure relationship, to lose sight of the functions contained in the MOA.

MOA Policy Improvement. HQ AFCMD personnel recommended that a MOA policy document be prepared at AFSC level to consolidate and define the purpose and contents of the MOA. By clarifying the normal AFPRO and SPO functions, the MOA could be used for exceptional functions. It was proposed that both the SPO and the AFPRO participate in the preparation of the agreement, and that its contents and structure reflect and be adaptable to the changing contract management environment.

The AFPRO interviewees presented a variety of answers to the issue of MOA policy improvement. Some considered the documentation adequate, while others stated that the lack of guiding documentation made the negotiation of the MOA subjective in nature and too dependent on the force of personality of the negotiators. The majority of AFPRO personnel considered the policy documentation to be scattered and reiterated the AFCMD proposal for an AFSC headquarters level policy document. This consolidated policy guidance would include the purpose of the MOA, specify when it is needed, and would prescribe subject areas for inclusion. It was deemed important to include, within the MOA, the mechanics of exactly how tasks would be performed by the AFPRO in support of the SPO.

A number of the SPO personnel considered the documentation for preparation and implementation of the MOA to be adequate. A frequently cited improvement was the establishment of an office of primary responsibility (i.e., the SPO) for the MOA and a focal point therein that would dictate its terms. The MOA would become a directive with reference to AFPRO activities. The SPO personnel stressed the need for periodic review and renewal of the agreement to update its terms.

Study of the Existing MOAs. The authors were given a complete set of MOAs by the Directorate of Development Engineering, HQ AFCMD. The Comptroller also provided three MOAs which pertained strictly to comptroller services activities. A review of these documents revealed that there are three formats being used for the agreement. The first type are single functional discipline memoranda. The second type contain within their structure, paragraphs or subsections that are concerned with the responsibilities and functions of a varying range of other AFPRO activities. The third type of memorandum includes, as appendices, separate pages containing the agreement reached on the responsibilities for specific AFPRO functional areas. The content of the MOAs ranged from a complete presentation of functions to be performed for the SPO with the joint AFPRO-SPO activities clearly

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delineated, to the incorporation of only those functions that are not enumerated clearly in ASPR to which an agreement had been reached on additions, deletions, or clarifications. The trend among the more recent MOAs has been toward the third type of MOA with its contents being used for additions, deletions, and clarifications to existing contract administration documentation.

X. Conclusions

The findings presented in the previous chapter are those substantive to the domain of this thesis. During the documentary and empirical investigation of this study, all data that appeared to have any bearing on the AFPRO role in the WSAP were collected for subsequent analysis. After the analysis was completed, the results were reported in Chapters IV, VI, VII, and VIII. The findings correlate the viewpoints of the personnel interviewed and relate these views to the pertinent policy and procedural guidance documents. The conclusions presented in this chapter are based wholly upon the data gathered during this study.

The Role of the AFPRO

Operative Viewpoints. There was general agreement among the interviewees that the role of the AFPRO is that of an in-plant supporting extension of the buying activity to assure that the contractor performs in accordance with the contract. SPO personnel were frequently identified as lacking in understanding and appreciation of this role in contract administration. As shown in Chapter IX, page 157, SPO personnel were divided on the issue of their support of the AFPRO role and functions.

Supporting Documentation. The "System Program Office Manual", AFSCM 375-3, contains a brief description of many of

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the AFPRO functions. The overall mission of an AFPRO in the WSAP is stated. Functional interfaces in the AFPRO-SPO relationship are outlined. Some references to other functionally specialized documents are provided in the text. A comprehensive listing in Attachment 2 to AFSCM 375-3 provides references to supporting documents by issuing agency, type of document, document number, and subject or title. The manual and many of the references need to be brought up to date but the basic content is reasonably accurate.

The "System Program Management Procedures" manual, AFSCM 375-4, provides additional explanations of the roles played by the contract administration, development engineering, production, and quality assurance divisions in an AFPRO.

The ASPR, in Section 1-406, assigns specific responsibilities for contract administration tasks to field activities designated in DOD I 4105.59H. Tasks that are open to delegation of responsibility and authority by the procuring agency are delineated.

Conclusions. Although SPO personnel stated the role of an AFPRO in the WSAP in agreement with the supporting documentation cited in Chapter IV, they were not found to possess a working understanding and appreciation of the role. This results in limiting the systems oriented utilization of AFPRO services in the WSAP. In addition, the policy guidance

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specifying the role and functions of the AFPRO is widely dispersed throughout the WSAP supporting documentation. Consequently, SPO personnel do not have readily accessible and visible documentation that would assist them in overcoming their lack of understanding of the AFPRO role.

The AFPRO-SPO Relationship

Operative Viewpoints. There is a consensus of opinion among HQ AFCMD and AFPRO personnel that SPOs do not understand the AFPRO role nor appreciate its capabilities. The primary evidence cited is the SPO reluctance to delegate task responsibility and authority until late in the WSAP. Consequently, the initiative in establishing contact and gaining SPO confidence in the early phases of the WSAP rests with the AFPROs. As programs mature, delegation of responsibility and authority for an increasing number of tasks is made from the SPO to the AFPRO.

The SPO fails to keep in view, the multi-program environment of AFPRO operations. Poor communications, arising from the intrinsic nature of three-party communications, and geographical separation of organizations are barriers to SPO understanding of the AFPRO role.

More than half of the SPO personnel could not visualize the mutually supporting relationship in existence between an AFPRO and a SPO participating in the WSAP. In addition, many

SPO personnel directly stated a lack of SPO understanding of AFPRO capabilities and its role in contract administration.

On the other hand, in mature programs, the AFPRO is not able to perform all of the tasks the SPO would like to have done by the AFPRO. This time variation of relationships is recognized by all parties. Additional differences in the nature of system programs that affect the role of the AFPRO are also recognized by the SPO and the AFPRO.

Supporting Documentation. The AFSC 375 series of manuals on systems management (see Chapter IV) contain references to the AFPRO-SPO relationships for the functional areas of engineering, configuration management, and procurement and production. The manuals do not cover the quality assurance function. In addition, the policy guidance documents do not provide instruction for the smooth transition of functional relationships between the various phases of the WSAP.

Conclusions. SPO personnel are reluctant to delegate task responsibility and authority to AFPRO functional counterparts until the late phases of the WSAP. They additionally do not recognize the mutually supporting relationships between an AFPRO and a SPO. Consequently, the AFPRO establishment of SPO contacts and confidence in the early phases of the WSAP depends on the initiative of the AFPRO in providing contract administration support to a particular SPO. The existing policy documentation does not provide guidelines

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that cover the nature and extent of AFPRO support to be given to SPOs throughout the WSAP phases.

The AFPRO-SPO Memorandum of Agreement

Operative Viewpoints. In general, the personnel interviewed cited a wide variety of answers concerning the purpose and the content of the MOA. The need was stated for a systematized MOA that integrates all of the functional relationships that exist between an AFPRO and a SPO.

Supporting Documentation. As shown in Chapter IX, there is no documentation in existence concerning the formulation of a systematized MOA that integrates the agreements reached in the various AFPRO-SPO functional disciplines. Quality assurance and development engineering are the only functional disciplines that were found to possess MOA policy documentation - AFSCR 74-6 and AFSCR 80-12, respectively.

Conclusions. In general, the personnel interviewed and the relevant documentation are not specific in their guidance concerning the content and the scope of the MOA negotiated between the SPO and the AFPRO. The existing policy documentation does not provide comprehensive guidelines for the formulation of the content and scope of a systematized MOA.

Quality Assurance (QA)

The DOD requirements for quality assurance programs are specified in MIL-Q-9858A, "Military Specification -

QUALITY PROGRAM REQUIREMENTS", dated 16 December 1963. AFSCR 74-6 further defines MIL-Q-9858A use of the term - "Government Representative" in specifying SPO and AFPRO responsibilities for quality assurance program definition and implementation. The documentary bases for definition and separation of SPO and AFPRO responsibilities are clear and understandable. Although 46.6% of the authorized AFCMD manpower (see Chapter V, p. 99) is devoted to QA and quality control functions, no counterpart function is provided in the SPO. Assignment of an additional duty to monitor QA matters to one man in the SPO is not adequate to maintain managerial control of QA program requirements and performance. Full-time assignment of qualified personnel is necessary during contract definition, development, and production of hardware and some software. Formulation and refinement of program and contract requirements that are uniform, reasonable, and attainable must be accomplished during contract definition and engineering development. Management of the specific program's QA requirements (integrating the multiple-contractor interfaces), can only be performed by the SPO. Continuous monitoring by the SPO is necessary through the early stages of the engineering design and the production phases. Sustained support into the later stages of the WSAP by the AFSC product division staff should satisfy mature program requirements.

The AFPRO-SPO Relationship Factors

The operating relationship between an AFPRO and a SPO was presented as a range of activities. At each extreme, there are activities unique to each organization. These activities are the essential functions and missions that form the basis for their organization. There are many activities that require negotiation and agreement between an AFPRO and a SPO to accommodate differing situations. The division of responsibilities in this middle region is affected by:

The nature of the programs.

The life cycle phase of the programs.

The type of contract and contract specifications.

Management arrangements between SPOs, AFPROs, and contractors.

The product and production processes.

Geographical separation and location of contractor facilities.

Geographical locations of the SPOs, AFPROs, and contractors.

Validity and Limitations

The empirical study performed through interviews of AFCMD, AFPRO, and SPO personnel is subjective in nature and not adaptable to statistical analysis and testing techniques. The interview questionnaire reflects the focus of the authors

in structuring the interviews. The questions and the interview techniques used were open-ended in that initial responses of the interviewee led to additional questions by one or both of the authors.

The questions were subject to interpretation by each interviewee. The response of the interviewee was, in turn, subject to interpretation by the authors. However, open discussion and exchanges of supplementary questions clarified intentions and resolved interpretation and mis-understanding problems.

The validity of generalizations made in this study is limited by the small interview sample size. Time available for the study and travel restrictions were primary limiting factors. However, the broad experience and background of most of the interviewees provided depth to their responses. The authors considered this factor during the analysis and summarized responses accordingly.

XI. Recommendations

It is the opinion of the authors that this study would be incomplete if no effort was made to propose problem solving recommendations. Based on the evidence found and the conclusions reached in the study, recommendations were formulated for specific actions and further study. The recommendations transform conclusions arising from the empirical study analysis into areas of suggested improvement that could be of some use to the AFCMD, AFPRO, and SPO organizations. In the course of the study, the authors also found a number of areas that warrant additional investigation but were beyond the scope established for this study. It was deemed important that these areas also be mentioned in the hope that they may serve as future research subjects.

Role of the AFPRO

A new AFSC 375 systems management series manual is proposed for weapon system programs. This is recommended to overcome the lack of understanding by organizations that employ AFPRO services. It would also improve clarity of the existing documentation. The AFSC level manual is considered necessary in order to make the consolidated manual visible to SPO personnel. The manual would provide SPO personnel with a general orientation concerning the support they can

receive from AFPRO organizations. It would also serve as a means for consolidating the existing scattered AFPRO documentation into one text that would be readily accessible to SPO personnel. Although a manual does serve as a general aid in educating personnel about the role of the AFPRO, it may not have this effect at the SPO operating levels. The present lack of understanding of the AFPRO role results in poor motivation to read any AFPRO documentation.

It is also recommended that the SPO organization (see Fig. 10 p. 95) be expanded to include a new support office for contract administration. It would be manned by a temporary duty cadre assigned by HQ AFCMD in the pre-contract award phase. The cadre would assist the SPO in preparing the contractual clauses pertaining to contract administration. It would also serve as a plant cognizance liaison office and would, at SPO request, make arrangements for capability briefings by the plant representative agencies of the bidding contractors. The briefings would supplement the AFSC manual on contract administration and would help to inform the SPO of the actual services that particular plant representatives could perform for the SPO. On the other hand, the contract administration support office would brief the DOD plant cognizance agencies of the competing contractors on the program and the planned contractual terms.

These briefings by both parties would provide an information exchange and a transition from pre-contract award to post-award phases. Early establishment of an effective AFPRO-SPO relationship would be facilitated. After contract award, the AFCMD cadre would return to their parent organization(s). The support office for contract administration would then be identified as the plant representative offices at the contractor facilities that have been awarded the contracts. Plant cognizance assignments and/or adjustments would be made in accordance with the DOD Plant Cognizance Program criteria. As determined by the SPO and the plant representative office, the support office at the SPO could be periodically manned by temporary duty personnel to allow for the rendering of specific contract administration support to the SPO.

The AFPRO-SPO Relationship

The external environment for contract administration structured by the WSAP is very complex. The large number of organizations and the mutual interactions experienced in this dynamic process requires the utmost care in providing clarity and visibility to the role of each participating organization.

The singular document recommended in the previous sec-

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tion on the role of the AFPRO should provide clear delineation of organizational and functional relationships. The factors affecting the nature and extent of the AFPRO-SPO relationship listed in the conclusions should be incorporated in the introductory section of the recommended document.

The necessity for aggressive AFPRO action to participate in the early phases of the WSAP should be emphasized. Guidelines for specific actions to be taken by the AFPRO and the timing of these actions must be clearly tied to each phase and subphase of the WSAP.

A coordinated effort to update the AFR 375-series and the AFSC 375-series regulations and manuals to correlate with the AFSC contract administration manual is a necessary adjective action.

The AFPRO-SPO Memorandum of Agreement

It is recommended that the Office of Deputy for Systems, HQ AFSC convene a MOA policy documentation conference in order to clarify the general confusion and wide variation of AFCMD, AFPRO, and SPO viewpoints concerning the Memorandum of Agreement. In attendance would be knowledgeable operative personnel selected by HQ AFCMD and the AFSC product divisions. The objective of the conference would be

the preparation of an AFSC 375 series regulation on the purpose and scope of the MOA. The subject matter to be discussed at the conference is recommended to be efforts toward

a definition of the purpose of the MOA

a clear delineation concerning the content of the agreement

a statement specifically indicating when the memorandum is necessary

provisions for a periodic review of the MOA for updating to reflect the actual AFPRO-SPO relationship

a requirement that the agreement assume a systems orientation by incorporating all of the AFPRO-SPO functional support agreements within one document to be jointly prepared and approved by the contract administration and buying activities.

The authors judge that such a conference is necessary to bring the contract administration and product division personnel together allowing them to reiterate and resolve their varying opinions concerning the MOA. Systems management requires the integration of many organizations, many people and their efforts, toward the common objective of procuring an effective weapon system.

SPO Quality Assurance

A quality assurance management function is recommended for major SPO organizations. This function should be manned

by full-time QA managers on an organizational level comparable to the present reliability engineering discipline.

The placement of at least one man is recommended in the Analysis and Integration Office, Deputy Director for Engineering, of system program offices managing major programs. Detailed QA requirements for hardware and software components, end items, and subsystems would remain the responsibility of each technical division or branch. The QA manager would be responsible for integration of these separate requirements, based on the system specification, to formulate contract requirements. This close interrelationship makes it necessary to identify QA management with the engineering function in a SPO. The technical Requirements and Standards Office (TRSO) in the AFSC product division is currently responsible for QA staff surveillance.

During the early phases of the WSAP, this recommended QA management function would be fully manned. In the mature stages of the acquisition phase, management, resources, and staff authority would be transferred to the TRSO. The TRSO would provide sustaining QA management support to mature program SPOs. In addition, complete life cycle QA support would be given to small and moderate sized programs by the TRSO.

Future Study Areas

There are four subjects that were judged worthy of further study. Each one is discussed below.

A proper charge is not being collected for AFPRO services rendered on defense products sold by the contractor to non-U. S. Government customers. Many AFPRO services are not physically separable for detailed cost segregation by ultimate customer classifications. No provision is made to charge the manufacturer or the customer for AFPRO services rendered when direct sales are made to non-U. S. Government customers. Under the Military Assistance Program, foreign countries pay a surcharge to the manufacturer for the foreign military sales. The surcharge is returned to the U. S. Government by reduction of price on existing DOD contracts. Other related contract pricing problems should be included in a study such as non-recurring cost apportionment and overhead rate computation and negotiation for consecutive annual procurement contracts.

The use of the contractor/AFPRO manning ratio as a control parameter distorts the true manpower quantity requirements and time-phasing of requirements. Allegations were made by AFPRO personnel that this distortion is taking place. In addition, the manpower standards in the Management Engineering Program (MEP) were said to be too inflexible

to meet changing AFPRO needs. The present system of forecasting future manpower requirements and obtaining authorized spaces through channels separate from the program approval system is outmoded. Little correlation of manpower resource and system program approval as a systems package is present. The HQ AFSC Management Engineering Team detachments resident at all AFSC divisions are a departure from a basic principle of management. Management must have authority to direct and control allocation of manpower resources that have been assigned to its organization. Authority and control over manpower assets within the command are centralized at the next higher level. Poor flexibility and responsiveness has been cited by field personnel as a result of this centralization.

A study was performed by HQ AFCMD Controller to consider consolidation of the Accounting and Finance regional offices and the data automation function. Formulation of a single detachment under the Comptroller was recommended. Further study of the Comptroller's recommendation may be warranted. The AFCMD has 27 separate detachments reporting to the Commander. The facts uncovered during the Comptroller study should provide a starting point to determine the existence of communication, coordination, staff and functional support, and other problems which may arise from

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this broad span of control.

The system program documentation (PTDP/PSPP/SPP) does not contain guidance to participating organizations for contract administration. A study to determine the need for a section on "concepts for contract administration", its specific content, and benefits that may be provided is a suggested study area.

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Appendix A

Interview Questionnaire

Part I The Role of the AFPRO

1. What do you consider to be the role of an AFPRO in the weapons acquisition process?
2. How does your particular function support (facilitate) the AFPRO role as you have stated it?
3. What guiding documentation is in existence to assist you in your support (facilitation) of the AFPRO role?
4. What management functions do you perform within the guidelines of the existing documentation?
5. What management innovations have you established in the performance of your duties due to either the lack of or inadequate guiding documentation?
6. What problems have you experienced in your support (facilitation) of the AFPRO role other than those due to inadequate or the lack of policy guidance in the following areas?
 - a. Formulating Objectives
 - b. Planning
 - c. Organizing
 - d. Allocation of Resources and Human Effort
 - e. Communicating
 - f. Coordinating
 - g. Directing
 - h. Controlling
 - i. Reporting
 - j. Staff and Functional Support
 - k. Any other Areas.

Appendix A

Interview Questionnaire

Part II The AFPRO-SPO Relationship

1. What is the functional nature of the relationship between your particular function and the SPO(AFPRO)?
2. What is your evaluation of the delineation of this relationship in the existing policy documentation including the AFPRO-SPO Memorandum of Agreement?
3. What problem areas have you experienced in your relationship with the SPO(AFPRO)?
4. In what way(s) do you consider the AFPRO-SPO relationship can be improved?
5. At what point during the life cycle of a weapon system should the AFPRO come "on board" in support of the SPO?
6. Do you consider that a periodic interchange of AFPRO and SPO personnel via a PCS would have any favorable effect on the weapon acquisition process?
7. What is the extent of the correlation in the AFPRO workload and the manpower cycling?

Part III The AFPRO-SPO Memorandum of Agreement (MoA)

1. What do you consider to be the purpose of the MoA?
2. What role does your function serve in the preparation of the MoA?
3. What role does your function serve in the implementation of the MoA?
4. What documentation serves as the basis for the formulation and implementation of your function's section of the MoA?

Appendix A

Interview Questionnaire

5. What documentation do you utilize in the preparation and implementation of your function's section of the MoA?

6. In your functional capacity, what problem areas do you see in the preparation and implementation of the MoA?

7. In what ways can the current policies for the preparation and implementation of the MoA be improved?

Appendix B

Weapon System Acquisition Process Charts

Table II

Major DoD Programs
(Source: Ref. 38, pp 64-66)

Descriptions of the Major DoD Programs:

Program 1 - Strategic Forces

Consists of major subdivisions, strategic offensive, strategic defensive, and civil defense. Includes command organizations associated with these forces.

Program 2 - General Purpose Forces

Consists of force-oriented program elements other than those in Program 1, including the command organizations associated with these forces, the logistics organizations organic to these forces, and the related logistics and support units deployed or deployable as constituent parts of military or naval forces and field organizations.

Program 3 - Intelligence and Communications

Consists of mission and activities directly related to combat forces, but not a part of any of the forces listed in Program 1 or 2 on which independent decisions can be made. Includes resources for primarily national or centrally directed DoD objectives for intelligence and security and communications, specialized missions such as weather service, aerospace rescue and recovery, and oceanography.

Appendix B

Program 4 - Airlift and Sealift

Consists of airlift, sealift, and other transportation organizations industrially funded (IF) and non-industrially funded (NIF). Includes command, logistic, and support units organic to these organizations.

Program 5 - Guard and Reserve Forces

Consists of national guard and reserve training units. Elements are arranged in program order to facilitate the relating of the guard and reserve training forces to the active forces.

Program 6 - Research and Development

Consists of all research and development activities not related to items that have been approved for procurement and deployment. The cost of R&D related to operational systems will appear in appropriate elements in other programs.

Program 7 - Central Supply and Maintenance

Consists of supply and maintenance that is not organic to other program elements. Includes non-deployable supply depots and maintenance depots, both industrially funded and non-industrially funded.

Program 8 - Training, Medical, and Other General Personnel Activities

Consists of training, medical, and other activities associated with personnel, excluding training specifically identified with another program element and housing, subsistence, medical, recreational, and similar costs that are organic to another program element (such as base operations).

Appendix B

Program 9 - Administration and Associated Activities

Consists of resources for the administrative support of departmental and major administrative headquarters, field commands and administrative activities (not elsewhere accounted for), construction support activities, and miscellaneous activities.

Program 0 - Military Assistance Activities

Consists of elements identified to the Military Assistance (MAP) and Assistance for International Development (AID) programs. This program is also responsible for those resources assigned to elements related to the Military Assistance Program or supporting the Military Assistance Program.

Appendix B

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| DOD PROGRAMS | | PRESIDENTIAL BUDGET | | | | | | | | | |
|--|-------------------|---------------------------|------------------------|---------------|-------|---------------|-------------|---------|------------------------|----|----|
| 1 STRATEGIC FORCES | 2 GEN PURP FORCES | 3 SPECIAILIZED ACTIVITIES | 4 AIRLIFT & ACTIVITIES | 5 GUARDFORCES | 6 R&D | 7 CENTRAL SUP | 8 PERS SUPT | 9 ADMIN | 10 MILITARY ASSISTANCE | 11 | 12 |
| MILITARY PERSONNEL | | | | | | | | | | | |
| RESERVE PERSONNEL | | | | | | | | | | | |
| OPERATION & MAINTENANCE | | | | | | | | | | | |
| PROCUREMENT | | | | | | | | | | | |
| RESEARCH, DEVELOPMENT, TEST & EVALUATION | | | | | | | | | | | |
| MILITARY CONSTRUCTION | | | | | | | | | | | |
| CIVIL DEFENSE | | | | | | | | | | | |
| REVOLVING & MANAGEMENT FUNDS | | | | | | | | | | | |
| ETC. | | | | | | | | | | | |

Table III. Correlation Between DOD Program Structure and Budget Categories (From Ref 38:52)

Appendix C

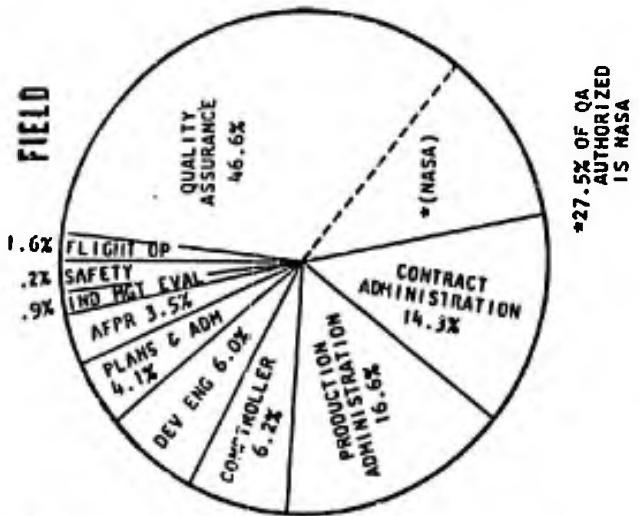
AFCMD OverView Charts



**DISTRIBUTION OF AFCMD
MANPOWER AUTHORIZATIONS**

AS OF 31 MAR 1969

FIELD



*27.5% OF QA
AUTHORIZED
IS NASA

HEADQUARTERS



SOURCE:
UDL

Table IV. Distribution of AFCMD Manpower Authorizations (From Ref 36:100)

Appendix C



AFCMD CURRENT MANNING STATUS

AS OF 31 MAR 1969

| ACTIVITY | AUTHORIZED | | ASSIGNED | | OFF | | OFF | | CIV | | CIV | | DIFERENCE | |
|----------------------|------------|-----|----------|------|-----|-----|------|------|-----|-----|------|------|-----------|------|
| | OFF | ACW | OFF | ACW | OFF | ACW | OFF | ACW | OFF | ACW | OFF | ACW | OFF | ACW |
| IN AFORD | 39 | 7 | 303 | 351 | 31 | 6 | 308 | 345 | -8 | -1 | +3 | -6 | -6 | -6 |
| ARMOUR | 15 | 0 | 132 | 147 | 9 | 0 | 135 | 144 | -6 | 0 | +3 | -3 | -3 | -3 |
| AVCO | 17 | 6 | 119 | 142 | 17 | 0 | 104 | 121 | 0 | -6 | -15 | -21 | -21 | -21 |
| BOEING-SPIRIT | 25 | 0 | 147 | 172 | 21 | 0 | 144 | 165 | -4 | 0 | -3 | -7 | -7 | -7 |
| GD FT WORTH | 29 | 5 | 267 | 301 | 3 | 0 | 74 | 77 | 0 | 0 | -1 | -1 | -1 | -1 |
| GD FORT DODGE | 16 | 0 | 168 | 182 | 13 | 0 | 254 | 263 | -3 | -2 | -13 | -18 | -18 | -18 |
| GD VALLEY FORCE | 16 | 0 | 113 | 129 | 16 | 0 | 161 | 174 | -1 | 0 | -7 | -8 | -8 | -8 |
| GEC AC ELECTRONICS | 11 | 0 | 70 | 81 | 10 | 0 | 101 | 117 | 0 | 0 | -12 | -12 | -12 | -12 |
| GEC ALLENBROOK | 9 | 0 | 92 | 101 | 9 | 0 | 70 | 80 | -1 | 0 | 0 | 0 | 0 | -1 |
| HUGHES | 27 | 1 | 213 | 241 | 25 | 1 | 206 | 232 | -2 | 0 | 0 | 0 | 0 | 0 |
| LOCKHEED-GEORGIA | 29 | 3 | 199 | 231 | 26 | 0 | 185 | 211 | -3 | -2 | -7 | -9 | -9 | -9 |
| LOCKHEED-SUNNYVALE | 27 | 0 | 110 | 137 | 23 | 0 | 103 | 136 | +1 | 0 | -14 | -20 | -20 | -20 |
| MARTIN DENVER | 16 | 0 | 98 | 112 | 14 | 0 | 100 | 114 | -4 | -2 | -2 | -1 | -1 | -1 |
| MCDONNELL DOUGLAS | 30 | 0 | 204 | 234 | 24 | 0 | 198 | 222 | -16 | 0 | +4 | +2 | +2 | +2 |
| MILC AUTOMOTIVES | 27 | 0 | 225 | 252 | 20 | 0 | 218 | 238 | -7 | 0 | -6 | -12 | -12 | -12 |
| MILC LOS ANGELES DIV | 11 | 0 | 73 | 84 | 19 | 0 | 68 | 81 | +2 | 0 | -5 | -7 | -7 | -7 |
| MILCOBRAZIL | 13 | 0 | 92 | 105 | 9 | 0 | 91 | 100 | -4 | 0 | -1 | -3 | -3 | -3 |
| OCOM | 15 | 0 | 64 | 79 | 12 | 0 | 57 | 69 | -1 | 0 | -9 | -10 | -10 | -10 |
| OTC | 15 | 0 | 209 | 224 | 10 | 0 | 186 | 194 | -8 | 0 | -25 | -30 | -30 | -30 |
| DET 1, VANDENBERG | 13 | 0 | 41 | 48 | 6 | 0 | 40 | 46 | -1 | 0 | -1 | -2 | -2 | -2 |
| DET 2, RICHARDS | 5 | 1 | 109 | 122 | 11 | 0 | 112 | 123 | -2 | 0 | +3 | +1 | +1 | +1 |
| DET 3, BOLLIGAN | 1 | 1 | 20 | 26 | 3 | 1 | 21 | 25 | -2 | 0 | 0 | -1 | -1 | -1 |
| DET 4, BOLLIGAN | 2 | 1 | 14 | 16 | 1 | 1 | 13 | 15 | 0 | 0 | -1 | -1 | -1 | -1 |
| DET 5, PATRICK | 11 | 0 | 239 | 250 | 11 | 0 | 235 | 266 | 0 | 0 | -4 | -4 | -4 | -4 |
| DET 20, EL SEGUNDO | 1 | 0 | 81 | 82 | 1 | 0 | 83 | 84 | 0 | 0 | +2 | +2 | +2 | +2 |
| DET 39, LA VARS | 32 | 22 | 8 | 62 | 27 | 22 | 8 | 57 | -5 | 0 | 0 | -5 | -5 | -5 |
| TOTAL AFORD | 458 | 47 | 3498 | 4003 | 397 | 34 | 3382 | 3813 | -61 | -13 | -116 | -190 | -190 | -190 |
| | | | | | 872 | 722 | 972 | 972 | 957 | | | | | |

SOURCE: UML
SCOM-32 FILES

* Authorized includes 74 operational

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Table V. AFCMD Current Manning Status
(From Ref 36:102)

Appendix C

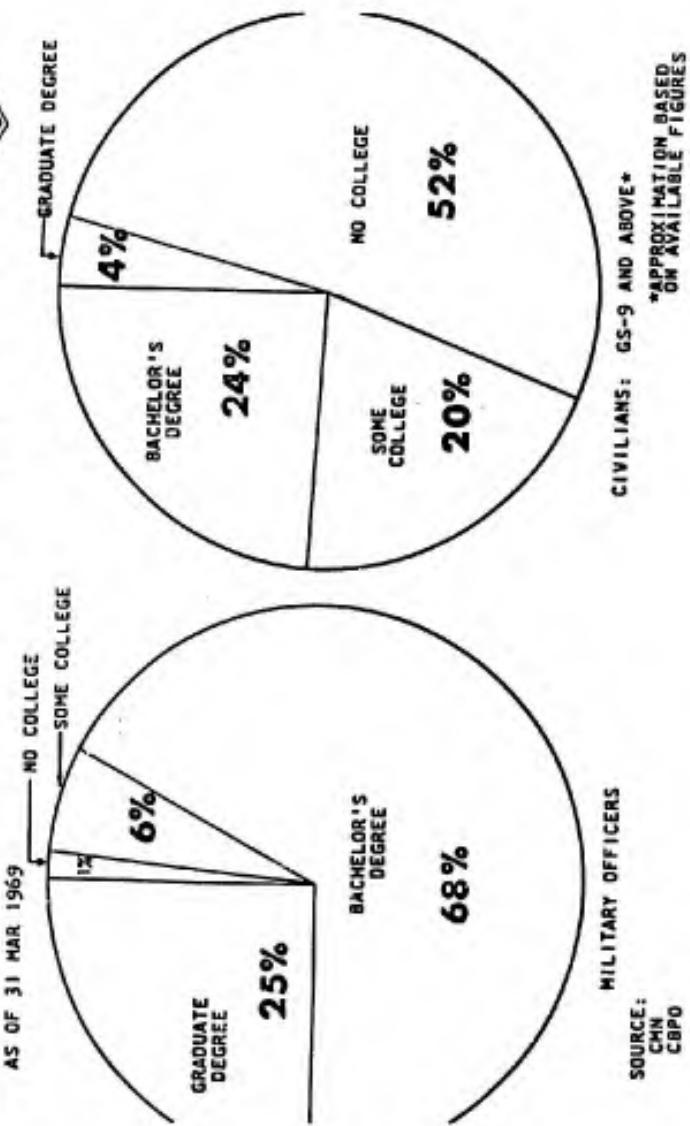


Table VI. Education Of The AFCMD Workforce - Military Officers/Civilians GS-9 And Above (From Ref 36:113)

Appendix C

| MAJOR PROGRAMS IN AFCMD * | | MISSILES | | AIRCRAFT | | A/C ENGINES | | SPACE | | OTHER | |
|---------------------------|----|-------------|--|----------|--|-------------|--|-------|--|-------|--|
| OF 31 MAR 1969 | | | | | | | | | | | |
| ROJET | CD | ING-S | | | | | | | | | |
| | | ING-W | | | | | | | | | |
| | | I-FW | | | | | | | | | |
| | | -EVENDALE | | | | | | | | | |
| | | -VF | | | | | | | | | |
| | | C-AC ELECT | | | | | | | | | |
| | | IC-ALLISON | | | | | | | | | |
| | | IGHE'S | | | | | | | | | |
| | | ICKHEED-G | | | | | | | | | |
| | | ICKHEED-S | | | | | | | | | |
| | | RTIND-D | | | | | | | | | |
| | | DIA-DOUGLAS | | | | | | | | | |
| | | -AUTONETICS | | | | | | | | | |
| | | -LA | | | | | | | | | |
| | | -ROCKETDYNE | | | | | | | | | |
| | | RTHRP | | | | | | | | | |
| | | DEN | | | | | | | | | |
| | | C | | | | | | | | | |
| | | WARD'S | | | | | | | | | |
| | | LIN | | | | | | | | | |
| | | LLORAN | | | | | | | | | |
| | | TRICK | | | | | | | | | |
| | | NDENBERG | | | | | | | | | |

SOURCE: O&R & SCORE - CHPR *BASED ON MINIMUM OF 9 MAN YEARS OF AFCMD DETACHMENT RESOURCES
#BASED ON SIGNIFICANT PRODUCTION DIFFICULTY

Table VII. Major Programs In AFCMD (From Ref 36:11)

Appendix C


RELATIVE SIZE OF AFCMD DETACHMENTS
3rd QTR FY 1969

| AS OF 31 MAR 1969 DETACHMENTS | PRIME CONTR ACO ASGN (1) | ULD (PR:ME) \$ MIL (2) | SECONDARY CONTRACTS | | CCNS ACO ASGN | ENGR CHS RECD IN 3Q | QTR CLASS II | PROPERTY CLASS II 5 MIL |
|---|-----------------------------|---------------------------|------------------------|--------------|------------------|------------------------|-----------------|-------------------------------|
| | | | ACO ASGN (1) | ACO ASGN (2) | | | | |
| AERODET | 185 | 141.3 | 18 | 60 | 78 | 1211 | 182.4 | |
| AVCO | 3221 | 565.6 | 0 | 49 | 13 | 1071 | 170.1 | |
| BOEING-SEATTLE | 847 | 346.3 | 4 | 228 | 290 | 4440 | 185.5 | |
| BOEING-WICHITA | 665 | 60.5 | 7 | 20 | N/A | N/A | 251.4 | |
| GD-FORT WORTH | 1040 | 2425.4 | 11 | 456 | 221 | 991 | 399.9 | |
| GE-EVERNDALE | 1213 | 672.3 | 2 | 4 | 25 | 478 | 477.5 | |
| GE-VALLEY FORGE | 296 | 80.1 | 1 | 56 | 78 | 1206 | 49.0 | |
| GMC-AC ELECTRONICS | 147 | 39.4 | 0 | 35 | 6 | 192 | 101.3 | |
| GMC-ALLISON | 2212 | 423.6 | 0 | 29 | 75 | 438 | 147.9 | |
| HUGHES | 1368 | 412.2 | 12 | 1 | 117 | 176.3 | | |
| LOCKHEED-GEORGIA | 1594 | 1264.7 | 4 | 121 | 370 | 1284 | 672.5 | |
| LOCKHEED-SUNNYVALE | 296 | 54.8 | 3 | 59 | 115 | 113 | 99.8 | |
| MARTIN-DENVER | 179 | 182.4 | 3 | 224 | 508 | 245 | 104.4 | |
| MCDONNELL-DOUGLAS | 172 | 67.9 | 10 | 1 | 193 | 472 | 322.9 | |
| NR-AUTONETICS | 919 | 249.7 | 7 | 139 | 149 | 572 | 482.4 | |
| NR-LOS ANGELES | 284 | 34.6 | 1 | 1 | 3 | 579 | | |
| NR-ROCKETDOME | 180 | 11.8 | 1 | 1 | 3 | 0 | 140.8 | |
| NORTHROP | 143 | 102.2 | 1 | 43 | 36 | 148 | | |
| OGDEN | 48 | 57.2 | 35 | 14 | 3 | 550 | 73.7 | |
| UTC | 37 | 86.3 | 0 | 11 | 62 | 388 | 264.2 | |
| EDWARDS | 3 | 7.2 | 37 | 0 | N/A | 110 | 44.4 | |
| EGLIN | 0 | 0 | 24 | 0 | N/A | N/A | 574.2 | |
| HOLLOWAY | 0 | 0 | 41 | 0 | N/A | N/A | 19.5 | |
| PATRICK | 9 | 0 | 68 | 0 | N/A | N/A | 40.3 | |
| VANDENBERG | 30 | 3.8 | 100 | 0 | N/A | N/A | 959.4 | |
| OTHER (MODIFIED HANDLING NOT ASGN'D TO ACO) | 2121 | 3.3 | 0 | 0 | N/A | N/A | 55.4 | |
| TOTAL | 17,149 | 7292.6 | 379 | 1,601 | 2,131 | 14,033 | 56,178.6 | |

SOURCE: CHM, CHP, CHE (1) INCLUDES NASA

(2) EXCLUDES NASA

Table VIII. Relative Size Of AFCMD Detachments (From Ref 36:12)

Appendix C



| | MILLION \$ |
|------------|------------|
| CIV. PERS. | 42.3 |
| TRAVEL | 0.9 |
| OTHER | 0.7 |
| COST AFMHD | 43.9 |
| MIL. PERS. | 6.1 |
| FACILITIES | 1.8 |
| TOTAL COST | \$51.8 |
| | 100.0% |

SOURCE: OPERATING BUDGET AUTHORITY

Table IX. Contract Administration
Annual Cost Of Operations (From Ref 36:85)

Appendix C

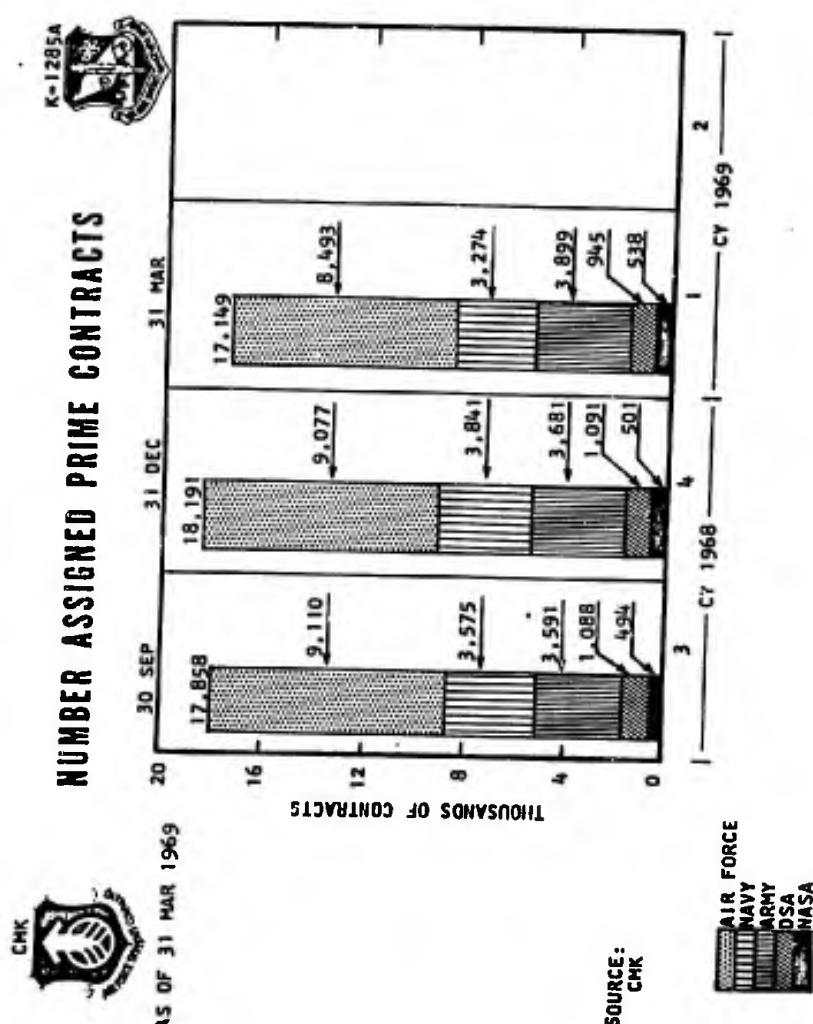


Table X. Number Assigned Prime Contracts (From Ref 36:13)

Appendix C

TYPES OF CONTRACTS ADMINISTERED
AFCMD (EXCLUDES NASA)

AS OF 31 MAR 1969

| | NUMBER OF CONTRACTS | | | | | | TOTAL |
|--------------|---------------------|-------------|------------|------------|-----------|--------------|--------------|
| | C/R | F/P | CPIF | FPIF | L/C | EDA ORDERS | |
| AIR FORCE | 1334 | 550 | 219 | 312 | 45 | 4569 | 1056 |
| ARMY | 187 | 250 | 58 | 33 | 16 | 3334 | 11 |
| NAVY | 288 | 378 | 32 | 12 | 10 | 2073 | 481 |
| OSA | 0 | 640 | 0 | 0 | 0 | 235 | 70 |
| TOTAL | 1899 | 2236 | 309 | 357 | 71 | 10211 | 1618 |
| | | | | | | | 16611 |

SOURCE:
GSM-13 (MECHANIZED)Table XI. Types Of Contracts Administered
AFCMD (Excludes NASA) (From Ref 36:15)

Appendix C

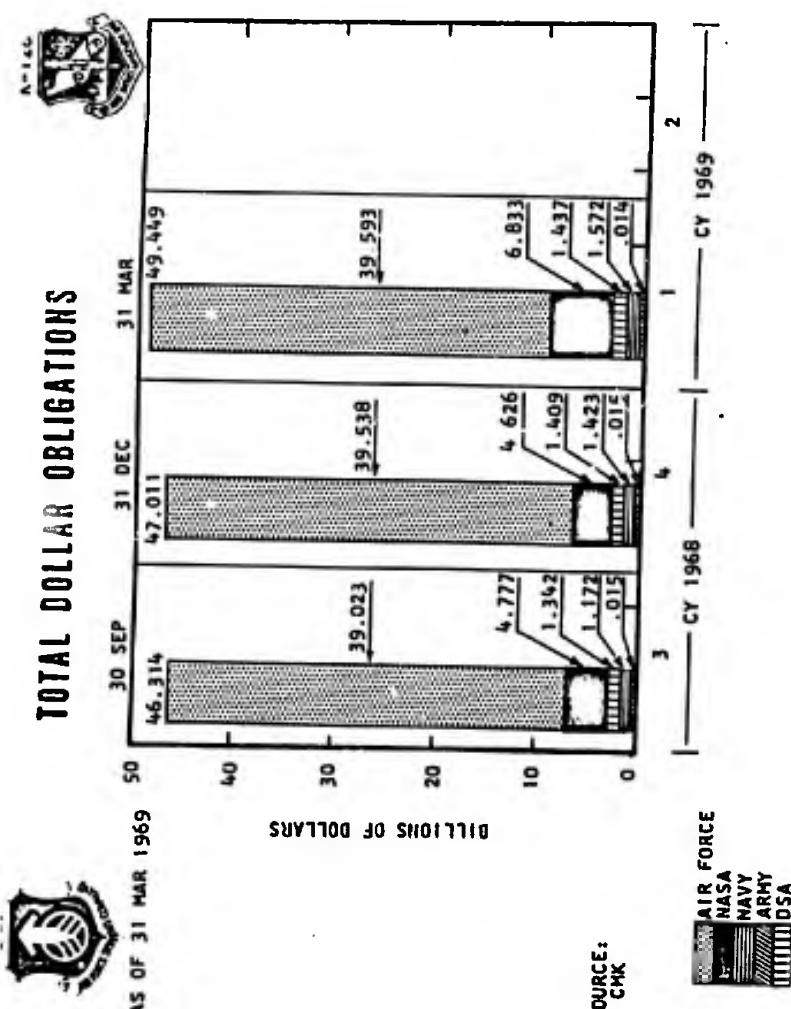
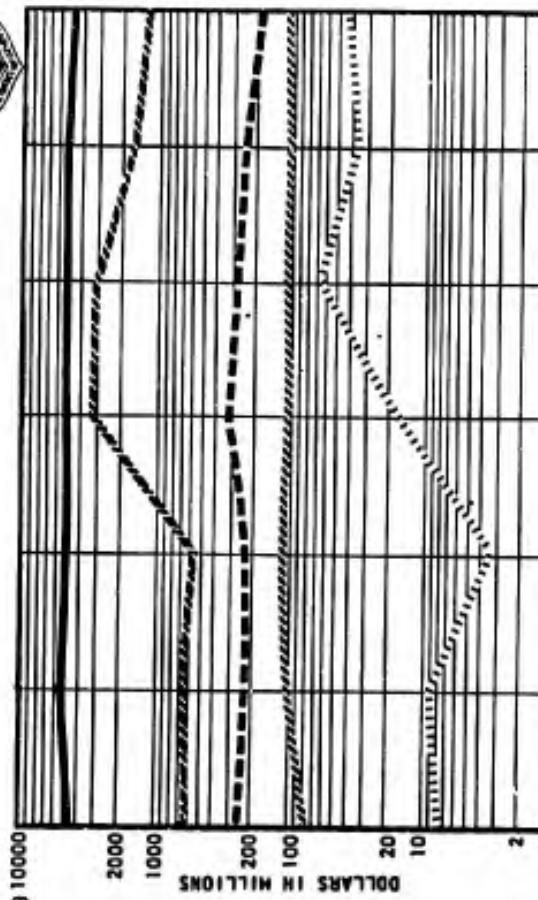


Table XII. Total Dollar Obligations (From Ref 36:14)

Appendix C

VALUE OF GOVERNMENT PROPERTY ADMINISTERED



| | JAN-JUN 1966 | JUL-DEC 1966 | JAN-JUN 1967 | JUL-DEC 1967 | JAN-JUN 1968 | JUL-DEC 1968 |
|---------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| AIR FORCE | 5,305.1 | 5,064.5 | 5,137.6 | 5,106.8 | 5,109.2 | 4,498.6 |
| NASA | 652.7 | 592.6 | 3,236.9 | 3,156.7 | 1,709.0 | 1,323.4 |
| NAVY | 225.0 | 230.2 | 311.7 | 291.2 | 248.0 | 192.5 |
| ARMY | 102.7 | 116.4 | 100.9 | 103.2 | 101.8 | 117.6 |
| OTHER (AEC-FAA-OSA) | q.n. | ? | 1.2 | 2.1 | 1.7 | 1.6 |

Table XIII. Value Of Government
Property Administered (From Ref 36:33)

Appendix C



CONTRACTS REQUIRING AFQA PARTICIPATION

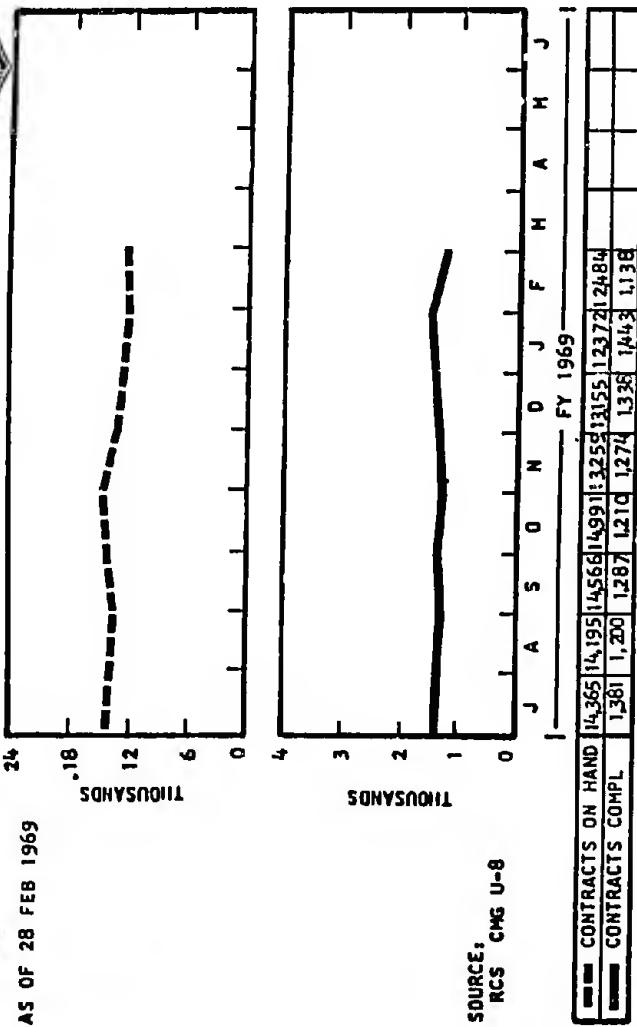
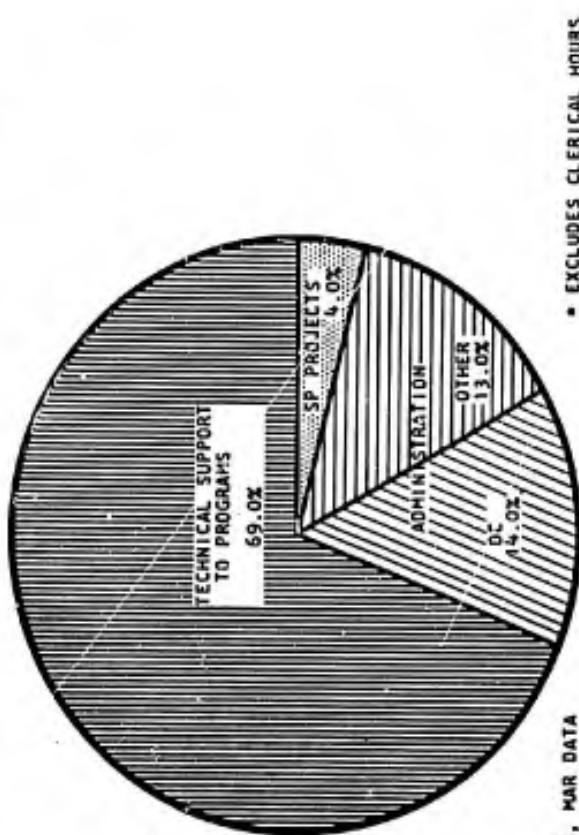


Table XIV. Contracts Requiring AFQA Participation (From Ref 36:41)

Appendix C



DEVELOPMENT ENGINEERING EFFORT*



SOURCE: CMG-R4
AS OF 31 MAR 1969
AVERAGE OF JAN, FEB, MAR DATA
* EXCLUDES CLERICAL HOURS

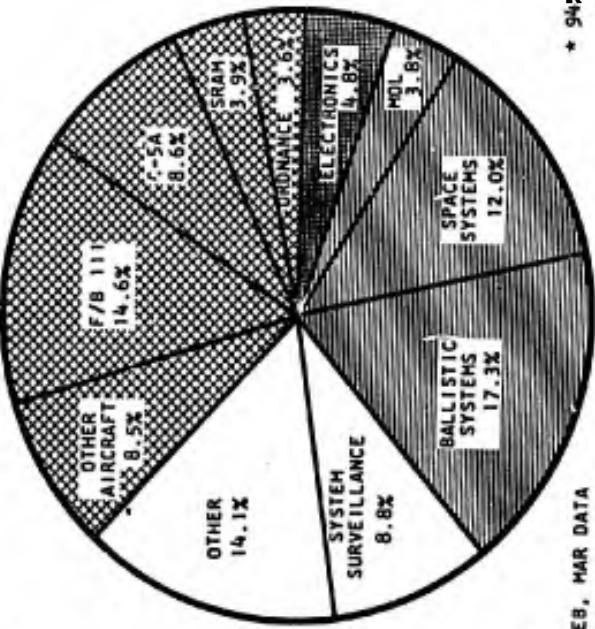


Table XV. Development Engineering Effort (From Ref 36:77)

Appendix C

DEVELOPMENT ENGINEERING TECHNICAL
SUPPORT TO PROGRAMS*

AS OF 31 MAR 1969



SOURCE: CMG-R4

AVERAGE OF JAN, FEB, MAR DATA

* 94% OF TIME IS SPENT
ON USAF PROGRAMS

Table XVI. Development Engineering
Technical Support To Programs (From Ref 36:76)

Appendix C


**FIELD COMPARATIVE DATA
AIRCRAFT FLIGHT ACCEPTANCE**

AS OF 31 MAR 1969

| CONTRACTOR/ LOCATION | ACFT TYPE | JAN | | FEB | | MAR | | APR | | TOTAL | |
|---------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----|
| | | ACFT | FLTS | ACFT | FLTS | ACFT | FLTS | ACFT | FLTS | FLTS | PER |
| <u>PRODUCTION</u> | | | | | | | | | | | |
| General Dynamics/Ft Worth | F-111A | 4 | 11 | 4 | 16 | 8 | 16 | 26 | 16 | 53 | 3 |
| Northrop/Hawthorne | T-38A | 11 | 21 | 7 | 4 | 4 | 4 | 7 | 12 | 33 | 11 |
| | F-5A | 4 | 7 | 4 | 4 | 1 | 1 | 1 | 1 | 18 | 1 |
| | RF-5A | 2 | 4 | 1 | 2 | 1 | 1 | 4 | 7 | 7 | 1 |
| | F-5B | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 3 | 3 | 1 |
| AFORD TOTALS | | 22 | 43 | 21 | 41 | 13 | 25 | 67 | 67 | 135 | |
| <u>MODIFICATION/MAINTENANCE</u> | | | | | | | | | | | |
| Lockheed/Georgia | C-11A | 8 | 22 | 10 | 22 | 7 | 14 | 25 | 33 | 37 | |
| | C-130B | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 3 | 3 | |
| | C-130E | 0 | 0 | 4 | 2 | 3 | 0 | 4 | 4 | 4 | |
| | C-130F | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | |
| | RD-130F | 0 | 0 | 15 | 17 | 13 | 22 | 4 | 4 | 7 | |
| AFORD TOTALS | | 10 | 15 | 17 | 22 | 13 | 22 | 44 | 44 | 58 | |

SOURCE: SIS-F3

Table XVII. Field Comparative Data
Aircraft Flight Acceptance (From Ref 36:79)

Appendix D

AFCMD Contract Administration Detachments
(Source: Ref. 37, p1-0)

Table XVIII

The Air Force Contract Management Detachments

Det 1 AFCMO, Vandenberg AFB, California
Det 2 AFCMO, Edwards AFB, California
Det 3 AFCMO, Holloman AFB, New Mexico
Det 4 AFCMO, Eglin AFB, Florida
Det 5 AFCMO, Patrick AFB, Florida

Table XIX

The AFPRO Detachments

Det 6 AFPRO, General Motors Corp., Allison Division
Det 7 AFPRO, General Motors Corp., AC Electronics
Det 9 AFPRO, Boeing Co., Seattle
Det 10 AFPRO, Martin-Marietta Corp., Denver Division
Det 12 AFPRO, North American Rockwell Corp., Rocketdyne
Division
Det 13 AFPRO, Lockheed Missle & Space Co., Space Division
Det 14 AFPRO, McDonnell-Douglas Astronautics Co., Western
Division
Det 15 AFPRO, North American Rockwell Corp., Los Angeles
Division
Det 16 AFPRO, North American Rockwell Corp., Autonetics
Division
Det 18 AFPRO, Ogden
Det 19 AFPRO, United Technology Center
Det 21 AFPRO, Lockheed-Georgia Co.
Det 25 AFPRO, AVCO (Stratford)
Det 27 AFPRO, General Dynamics (Fort Worth)
Det 28 AFPRO, General Electric (Evendale)
Det 34 AFPRO, Boeing Co. (Wichita)
Det 35 AFPRO, Aerojet-General Corp. (Sacramento)
Det 36 AFPRO, Hughes Aircraft Co.
Det 37 AFPRO, Northrup Corp.
Det 38 AFPRO, General Electric Co., Missile & Space Div.
(Valley Forge)
Det 40 AFPRO, AVCO Corp., Systems Division and Applied
Technology Division (Wilmington)

Appendix E

Correspondence - Letters and Memoranda

This Appendix contains two items of correspondence:

HQ AFCMD internal memorandum from the
Comptroller (CMC), to the Commander (CMG),
subject: AFPR Participation in HQ AFSC
Program Reviews, dated 17 July 1969.

HQ Space and Missile Systems Organization
letter (SMAA) to HQ AFCMD (CML), subject:
Program Management Working Group, dated
23 May 1969.

Appendix E

CMC

17 July 1969

MEMORANDUM FOR CMG

SUBJECT: AFPR Participation in HQ AFSC Program Reviews

1. This relates in part to Gen Teubner's discussions, 15 July 1969, with the Commander and staff concerning increased emphasis on program cost management. As was briefly explained by Gen Teubner:
 - a. Gen Ferguson has required the development and operation of revised and improved program status (cost, schedule, performance) reviews for his information and action.
 - b. A meeting of acquisition division Commanders, including selected SPDs, was held at Andrews AFB 9 July 1969. The emphasis on program review/management was Gen Ferguson's prime topic. These meetings will be continued.
 - c. The AFCMD/AFPRO role in relation to Air Force program management is one of significance, but was not sufficiently identified or exploited as the revised and improved AFSC program management review plans were being developed.
 - d. Air Staff and HQ AFSC have developed a new cost, schedule, performance reporting system (SPAR). AFCMD/AFPRO assistance and support to SPOs is necessary.
2. In telecon 16 July 1969, Col Roy Seccomb, Director of Cost Analysis, Comptroller, HQ AFSC, advised that he had discussed the AFCMD/AFPRO role more fully with Gen Ferguson. As a consequence, Gen Ferguson (recognizing the omission of AFCMD/AFPRO from actions to date) directed that the AFPR attend these program reviews in company with the respective SPD.
3. The program reviews are held at HQ AFSC; Gen Ferguson presides - they are presently scheduled for a forward period of five weeks; additional program reviews are being scheduled for follow-on weeks. Those presently scheduled are:

GSM/SM/69-11,4

| | |
|-----------------|------------------|
| 19 Jul 1969 (1) | MAVERICK A7-D |
| 26 Jul 1969 | SRAM F-111 |
| 2 Aug 1969 | MINUTEMAN |
| 9 Aug 1969 | F-15 AWACS |
| 16 Aug 1969 | C-5A AMSA |

(1) A TWX requesting and confirming attendance of Col Montgomery (Det 36) has been dispatched by HQ AFSC.

4. Col Seccomb requests that we advise him early next week of selectees to attend the above-listed program reviews. While I did not discuss the following point during the telecon, I do not recommend attendance at those reviews involving programs such as F-15, AWACS, AMSA, which are in competition. When contractor selections are made and assuming Air Force plant cognizance, attendance would then be appropriate.

s/t B. F. Griffin

B. F. GRIFFIN
Comptroller

GSM/SM/69-11,4

Appendix E

DEPARTMENT OF THE AIR FORCE
HQ Space and Missile Systems Organization (AFSC)
AF Unit Post Office, Los Angeles, Calif. 90045

SMAA

Program Management Working Group

23 May 1969

CML (Mr. T. A. S. Murray)

1. I request your support in our funded Minimum Cost Design Space Launch Vehicle (MCD/SLV) preliminary design study by providing members of your staff to the Program Management Working Group. This group will evaluate contractor and Government management approaches and plan a combined Government/contractor management system for MCD/SLV. The Terms of Reference for this group are delineated in Atch 1. The Statement of Work for the funded preliminary design study (Atch 2) explains the tasks the contractor will perform in the program management area.
2. Your support is definitely needed for this study as program management involves many disciplines and is always undergoing dynamic changes. Your office would be of particular help in defining the SPO/AFPRO relationship required for MCD/SLV. Other assistance that you feel is needed would be greatly appreciated.
3. I anticipate that we will also be receiving assistance from the SAMSO Comptroller, Staff Judge Advocate, Procurement, Safety, Titan SPO, Technical Requirements and Standards, and Aerospace Corporation.
4. The chairman of this working group is Capt David Teal (SMAAP/x32154). The first meeting will be held 6 June 1969. The details of this meeting will be distributed shortly.

GSM/SM/69-11,4

Appendix E

5. If you can support this activity, please send the names of the participants to Capt Teal. We also welcome recommended changes to the group Terms of Reference.

s/t Theodore E. Mock

THEODORE E. MOCK, Colonel, USAF
Chief, Technology Applications Division
Directorate of Development Plans (SMA)

2 Atch

1. Terms of Reference
2. Statement of Work

Appendix F

Definitions

Contract Administration - The process of assuring that the provisions of contracts between the government and its contractors are fulfilled.

Primary Contract Administration - The performance of contract administration tasks that are specifically assigned by the ASPR and the service directives, and those responsibilities delegated by the procuring agency.

Secondary Contract Administration - Supporting contract administration to perform certain responsibilities delegated from the office of primary contract administration to another office of administration.

Five Year Defense Program - The official OSD publication which summarizes the approved plans and programs of the Department of Defense components.

Program - A combination of program elements designed to express the accomplishment of a definite objective which is specified as to the time phasing of what is to be done and the means proposed for its accomplishment. Programs are aggregations of program elements and in turn aggregate to the total Five Year Defense Program.

Program Element - The basic building block of the Five Year Defense Program, is a description of the mission to be undertaken and a collection of the organizational entities identified to perform the mission assignment. Elements may consist of forces, manpower, materials (both real and personal property), services, and associated costs as applicable.

Approved Programs - Resources for individual program elements of data reflected in the Five Year Defense Program, as modified by subsequent authorized changes.

Program Change Request - Proposals for changes to the approved data in the Five Year Defense Program.

Appendix F

Definitions

Weapon System - Equipment and skills together with any related facilities, services, information, and techniques, that form an entity capable of performing specific operational tasks in support of an identifiable defense objective.

System Master Plan - A compilation of planning documents prepared by the System Manager, with assistance from the participating organizations and contractors, which places in context the plans, schedules, costs, and scope of all work and resources to be provided by each participating organization.

Participating Organization - A government organization not part of the System Program Office; necessary for execution of specific aspects of a system and identified by the chartering authority or identified in the approved, negotiated System Master Plan.

Prime Contract - A direct contract between the government and a contractor.

Letter Contract - A written preliminary contractual instrument authorizing the immediate initiation of work and procurement of necessary resources.

Subcontract - A contract between a government prime contractor or another subcontractor and a lower tier contractor.

Procuring Contracting Officer - An agent of the government who is authorized to enter into contracts for supplies and services on behalf of the government.

Administrative Contracting Officer - An agent of the government who is responsible for administering a contract as written.

Terminating Contracting Officer - An agent of the government who is responsible for terminating contracts and settling termination claims.

VITA

Roger Tadashi Kozuma [REDACTED]

[REDACTED] [REDACTED] [REDACTED] graduated from high school in New York City in 1949. He graduated from Purdue University in January 1954, with a Bachelor of Science degree in Air Transportation. He entered active duty in the USAF in June 1954. He served as a supply officer in various AF organizations until he attended the Air Force Institute of Technology where he received a Bachelor of Science degree in Aeronautical Engineering in August 1964. His most recent assignment was in the F-111 System Program Office in Engineering Management and subsequently in Program Management. He participated in the Combat Lancer Project of the F-111 in Thailand as a Propulsion and Power Engineer.

[REDACTED] [REDACTED]
[REDACTED] [REDACTED] [REDACTED]

VITA

Frederick Thomas Dehner [REDACTED]

[REDACTED] After graduating from Xavier High School in 1959, he attended Manhattan College, New York City, where he graduated in June 1963, with a degree of Bachelor of Science in physics. He was commissioned a Lieutenant in the USAF in July 1963 and entered active duty in August 1963. His military assignment prior to being assigned to the Air Force Institute of Technology was as a project engineer in the Air Force Armament Laboratory, Eglin AFB, Florida.

[REDACTED] [REDACTED] [REDACTED] [REDACTED]

Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

| | | |
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| 10. DISTRIBUTION STATEMENT This document is subject to special export controls and each transmittal to foreign governments or foreign nationals may be made only with prior approval of the Dean of Engineering, Air Force Institute of Technology (AFIT-SE), Wright-Patterson AFB, Ohio, 45433. | 11. SUPPLEMENTARY NOTES | |
| | | 12. SPONSORING MILITARY ACTIVITY |
| 13. ABSTRACT The objective of the research was the preparation of a systems oriented treatise on the AFPRO role and the AFPRO-SPO relationships in the Weapon System Acquisition Process (WSAP). A literature and official documentation research effort was conducted to determine the extent of existing policy documentation coverage of the AFPRO role, the AFPRO-SPO functional relationships, and the AFPRO-SPO Memorandum of Agreement (MOA). Air Force Contract Management Division (AFCMD), AFPRO, and SPO personnel were interviewed in order to obtain operative data on the subject. The SPO personnel interviewed stated the AFPRO role in the WSAP, in agreement with the supporting documentation. They also stated that most SPO personnel do not have a working understanding and appreciation of the AFPRO role. The policy guidance specifying the role and functions of the AFPRO is widely dispersed throughout the WSAP supporting documentation. Consequently, SPO personnel do not have readily accessible and visible documentation that would assist them in overcoming their lack of understanding of the AFPRO role. SPO personnel were found to be reluctant to delegate task responsibility and authority to AFPRO functional counterparts until the late phases of the WSAP. Very few recognize the mutually supporting functional relationships between an AFPRO and a SPO. Consequently, the AFPRO establishment of SPO contacts and confidence in the early phases of the WSAP depends on the initiative of the AFPRO in providing contract administration support to a particular SPO. The existing policy documents | | |

(Continued in Block 14)

DD FORM 1 NOV 68 1473

Security Classification

| 14. KEY WORDS | LINK A | | LINK B | | LINK C | |
|---|--------|----|--------|----|--------|----|
| | ROLE | WT | ROLE | WT | ROLE | WT |
| Air Force Contract Management DOD Plant Cognizance Weapon System Acquisition Process Contract Administration Air Force Plant Representative Office AFFPRO-SPO Memorandum of Agreement Air Force Contract Management Division System Program Office | | | | | | |

(Continued from Block 13)

do not provide guidelines that cover the nature and extent of AFFPRO support to be given to SPOs during all phases of the WSAP. In general, the personnel interviewed and the relevant documentation are not specific in their guidance concerning the content and the scope of the MOA negotiated between the SPO and the AFFPRO. The existing documentation, additionally, does not provide comprehensive guidelines to formulate the content and scope of a systematized AFFPRO-SPO MOA. Although the AFFPRO quality assurance function was determined to require 46.6% of the authorized AFCMD manpower, it was established that SPOs, in general, do not possess, within their organizations, the necessary function to maintain and control quality assurance program requirements and performance. The AFFPRO-SPO relationship factors were found to cover a wide range of activities. At the extremes are functions that are unique to either the AFFPRO or the SPO. In the mid-range are a variety of overlapping activities that are a function of the program peculiarities, the AFFPRO-SPO-contractor, legal and operating relationships, and the product yielded via these relationships.